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# HEALTHY CITIZENSHIP

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*CANADIAN HYGIENE SERIES*

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# HEALTHY CITIZENSHIP

BY

J. MACE ADDRESS, PH.D.

AND

W. A. EVANS, M.D.

AUTHORIZED FOR USE IN THE  
PROVINCES OF QUEBEC AND NOVA SCOTIA



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## PREFACE

The keynote of this volume is SERVICE.

The boys and girls in the upper grades of the grammar school and the junior high school are at an age when they are thinking more about others than ever before. They are beginning to realize their common interest with the community. In their plays and games and spontaneous activities they are experiencing in a more pronounced way than hitherto the satisfactions that result from coöperating with their companions. The emotional life is quickened. Heroic achievements become more impressive. Idealism is in the making. Such rich soil offers abundant opportunity for the growth of Canadian citizenship. During this important period what is most needed is the intelligent and sympathetic direction of children's activities. It is in these grades that a large number of children begin to drop out of school. Many of them may never learn the valuable lessons of health service unless they become imbued with the spirit of good citizenship during these years.

Fortunately the field of health teaching lends itself admirably to the ideals and habits of citizenship. To be capable of social service one needs first of all personal health. The old fact-cramming physiology is rapidly

disappearing from our progressive schools; but there is a general agreement that children today need to have substantial facts about the working of the human body. In the presentation of facts an attempt is made throughout the text to subordinate facts to principles of action. *Health habits are emphasized.*


This book presents those facts about the health of the home, school, and community which will give pupils an insight into problems of social health, and inspire them to take part in their solution. The exercises at the end of each chapter are intended to stimulate the self-activity, experimentation, and teamwork of the readers. Many group activities are suggested in the study of community health problems.

The authors are indebted for many helpful suggestions and for constructive criticism to Messrs. D. C. Logan and H. J. C. Darragh; Superintendent and Assistant Superintendent, respectively, of the Montreal Protestant Schools; to a committee of school principals under the chairmanship of Mr. N. C. Davies; and to Dr. Grant Fleming, Director of the Department of Public Health and Preventive Medicine, McGill University. To the many teachers who have contributed directly and indirectly to this volume the authors express their hearty thanks.

J. MACE ANDRESS  
W. A. EVANS

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# HEALTHY CITIZENSHIP

## CHAPTER I

### TWO HEALTH HEROES

**Curious Ideas about Illness.** From the earliest history man has fought disease. The fight was not always successful because he did not know the cause of illness. Often he held evil demons responsible. Some men taught that all the joys and ills of life were due to the position of the heavenly bodies. Pestilence was believed to come from spots on the sun. Some illnesses were said to be due to vapors that arise from the earth. Even the direction of the wind was thought to determine sickness and health. Most of these curious ideas were common not more than fifty years ago. As long as the real cause was unknown little could be done to prevent and cure disease.

**Pasteur, Friend of Animals and Men.** The man who overturned these absurd notions and gave us a scientific basis of medicine was Louis Pasteur. It was largely because of his scientific work that man has celebrated one victory after another over disease. It was Pasteur's belief that science would finally conquer all disease.



Very early in his work Pasteur showed that fermentation such as is found when canned fruit "works" was caused by bacteria. These bacteria are very small plants. Bacteria are often called germs, although germs include both microscopic plants and animals. It was Pasteur who



LOUIS PASTEUR

The founder of modern medicine

found that the souring of milk was caused by a particular kind of bacterium and that the heating of milk to a certain point would free it of disease-producing bacteria. This process is now called pasteurizing, in honor of its founder.

Pasteur was the first man to prove the practical value of the germ theory.

Pasteur's aid was next sought to save the silk industry, which was threatened with extinction because of the extraordinary mortality of the silkworms. After a long and laborious search Pasteur found that the silkworms had been destroyed by two microscopic organisms. The silk industry was soon saved, simply by selecting the eggs of healthy worms for breeding and destroying the others. Pasteur had saved one of the great industries of France.

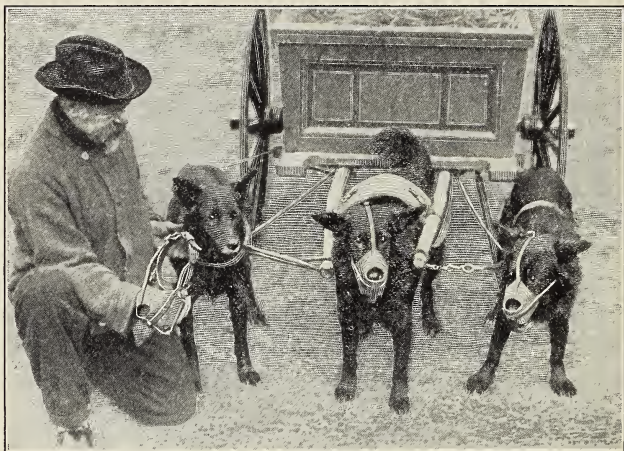
One of Pasteur's greatest achievements was the conquest of anthrax. This is a very ancient disease, fatal to men as well as to cattle. At that time it was destroying herds of sheep and cattle in France and also many human lives. In 1880 Pasteur announced that he had discovered a way to make animals immune to a disease by introducing into their blood some of the weakened germs of the disease. The next year he announced that sheep and cattle could be protected against anthrax by this method.

The president of an agricultural society suggested that there should be a public test. He offered to furnish a drove of fifty sheep, half of which were to be inoculated with the weakened anthrax germs. Later all the sheep were to be inoculated with the strong or virulent anthrax germs. Two goats were finally used instead of two of the sheep, and ten cattle were added. The first preventive inoculation with the weakened anthrax germs was on May 5, and the second on May 17. Twenty-four sheep, one goat, and six cattle were given these inoculations. On May 31 all sixty of the animals were inoculated with powerful anthrax bacteria. The animals were then left in an inclosure to await the result of the test.

On June 2 a vast crowd gathered to see the results of the experiment. It was a dramatic moment. All the animals that had not been given the preventive inoculation lay scattered about the inclosure dead or dying, while those that had been protected walked around

unconcernedly in perfect health. All France rang with the praises of Pasteur. He became a great national hero.

That day marked a new era in medicine. Pasteur had saved a great industry. Chicken cholera and the swine




THE MUZZLED DOG IS SAFE

plague were other diseases of animals that he later investigated with success. Pasteur had proved himself a friend of animals. It only remained for him to apply his knowledge to human beings.

**Protection against Rabies.** Pasteur's first chance to try protective medicine on man came about quite unexpectedly. Pasteur had experimented in his laboratory with the dread disease called hydrophobia, or rabies,

usually transferred by bites of dogs. He discovered that when dogs were inoculated with the weakened germs of the disease, they would become immune to rabies. The weakened germs led the body to manufacture antibodies.

 It took about fifteen days to make a dog immune. Usually the malady does not develop in man until a month after he is bitten, so it looked as if a human being might be treated after being bitten and made immune. Pasteur hesitated to try this treatment on man. He shrank in terror from the thought.

Finally one day Joseph Meister, aged nine, came with his mother to visit Pasteur. The little boy had been dreadfully bitten by a mad dog, and Pasteur was implored to give help. After much anxious thought he decided to give him treatment. It was a success, and other successes followed.

Because of Pasteur's teaching we are now able to protect ourselves against rabies. In many communities dogs are not allowed on the street unless they are muzzled. In every case when a person is bitten, the dog should be confined and watched to find out whether he shows any sign of disease. If he does, the Pasteur treatment should be given the person at once. Children should be careful in playing with dogs not to tease or irritate them. Beware, too, of petting stray dogs.

**Pasteur a Health Hero.** On December 27, 1922, the entire civilized world celebrated the hundredth anniversary—

of the birth of Louis Pasteur. His name was honored because of his great service to mankind. Much of medical science today depends on his discoveries.

During Pasteur's life many honors were paid him. He



JOSEPH LISTER

He made modern surgery possible

was made a member of many learned societies, and the Czar of Russia conferred upon him the diamond cross of the order of St. Anne of Russia.

#### ✓ Lister a Health Hero.

The great discoveries of Pasteur concerning the relation of disease to bacteria appealed to the imagination of a very noted English surgeon, Sir Joseph Lister. He

reasoned that if bacteria were the cause of diseases, they were probably also the cause of the formation of pus and blood-poisoning after a wound. If drugs could be found to kill the bacteria, and other germs could be kept out, wounds would heal readily. This thought brought about a revolution in hospitals. Carelessness gave way to great cleanliness, and surgery became much more successful than it had ever been before.



*Remember*

- ✓ 1. Pasteur was the founder of modern medicine.
- ✓ 2. He was the friend of both animals and men.
- ✓ 3. Sir Joseph Lister made surgery safe.

What other important facts do you remember from your study of these two health heroes?

*Health Habits*

- 1. Keep clean.
- 2. Be helpful.

*Things to Do*

- 1. Tell the story of Pasteur.
- 2. Look up more facts on the life of Pasteur and his service to mankind.
- 3. Write a play with Joseph Meister as one of the chief characters.
- 4. Tell the class the story of Sir Joseph Lister.
- 5. Find more facts about Lister's life.

*Review and Thought Questions*

- 1. What were some of the early ideas about the cause of disease?
- 2. Why did people of long ago meet with so many failures in fighting disease?
- 3. What proof have we that Pasteur was a friend to animals as well as to people?
- 4. What episode in Pasteur's life was most interesting to you? Why?
- 5. How was Pasteur honored for his service to the world?
- 6. How can we protect ourselves against rabies?
- 7. Why may we think of Lister as a health hero?

## CHAPTER II

### TRUDEAU'S GREAT VICTORY

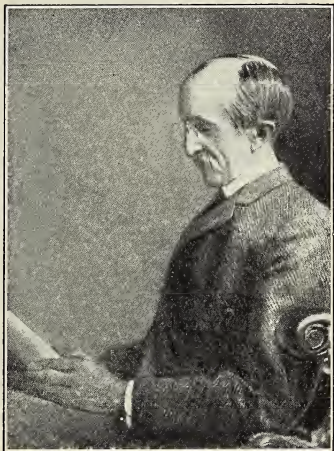
**The Story of Dr. Trudeau.** Few men have been so helpful to the world as Dr. Edward Livingston Trudeau. At the age of twenty-five he discovered that he had the dread disease called tuberculosis. Nobody knew of a cure for it, and his friends gave up all hope of his recovery. Before this, life had looked very bright. He was ready to take up his life work as a physician. He now found himself ill, his future doubtful, and a family dependent upon him. But Dr. Trudeau was a brave man. Instead of giving up hope he made a wonderful fight for his life, won the battle, and taught the world one of its finest lessons.

Dr. Trudeau had always loved the peace of the mountains. He now longed for the quiet of God's great out of doors. Finally, he took up his abode with his family at a beautiful mountain lake. It was far away from the comforts of civilization and in a region so cold that the thermometer sometimes went down as low as 40 degrees below zero. Most of Dr. Trudeau's friends advised against his going, but he went. He took plenty of rest and sleep and ate nourishing food. In the years that followed he spent much of his life hunting and fishing in the open air. Then

a most wonderful thing happened. He began to recover from tuberculosis, and finally became well enough to live to a ripe age. As he gained in health he began to practice medicine among the humble folk of the vicinity. He did not ask for fees. Because of his lovable nature and his desire to help others he was called by many "the beloved physician."

One day, while waiting for foxes on a fox-run, he fell asleep, leaning on his gun. As he slept he dreamed that the side of the mountain at Lake Saranac was dotted with beautiful cottages built inside out. It seemed as if the people who inhabited them lived on the outside, where they could

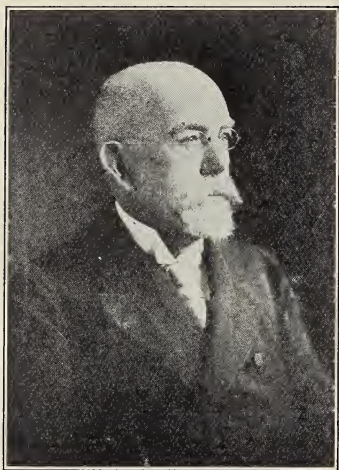
breathe plenty of fresh air. That dream came true. Through the hard work and patience of Dr. Trudeau the splendid buildings of the sanitarium at Lake Saranac were erected. He had proved to the world that tuberculosis could be cured. Today there are several



DR. TRUDEAU, THE BELOVED  
PHYSICIAN

His victory over tuberculosis has saved  
thousands of lives

hundred hospitals and sanitariums in America that owe their beginning to Dr. Trudeau, and thousands of people who would not be alive today except for his great lesson.



DR. ROBERT KOCH

The scientist and physician who discovered the tubercle bacillus and so made possible the successful war now being carried on against tuberculosis

### Nature of Tuberculosis.

The disease over which Dr. Trudeau won his victory is caused by the tubercle bacillus. Under the microscope it looks like a tiny rod. This bacillus will not grow and multiply outside the bodies of animals, but it differs from all others in that it can and does live in all known large animals. It is found in man, cows, hogs, monkeys, and lions, and even in such cold-blooded animals as turtles and snakes.) In man it locates itself in

the lungs, causing consumption, or in the bones, causing hunchback, or in the glands, causing scrofula. People sometimes get it by drinking milk from tuberculous cows.

Dr. Trudeau and other physicians have proved that tuberculosis is due to faulty customs and habits.

**Spitting, a Filthy Habit.** One of the most disgusting and dangerous habits is that of spitting in public places. One reason why this is dangerous is that sputum, or spit, sometimes contains the disease germs of tuberculosis, pneumonia, measles, common colds, and other diseases. The sputum may dry and be breathed in, causing sickness. Because spitting is dangerous to the public, laws have been passed prohibiting it. Coughing and sneezing without covering the mouth with a handkerchief or napkin is another way of spreading disease, for the sputum is sprayed into the air and breathed in by other people.

The consumptive should be especially careful about his sputum, because it contains tubercle bacilli. He should spit into a paper and burn the paper. If he spits into a handkerchief, he must boil the handkerchief as soon as possible. Soiled handkerchiefs in the pockets or in the hands may cause trouble.

**Enjoy Sunshine and Pure Air.** Consumption is a house disease. People who live in the open air seldom have it. In the days when the Indians were savages and lived in their crude wigwams and hunted through the forests and over the plains, consumption was almost unknown. As soon as they began to live in houses, like white men, they began to have consumption. Sunlight and fresh air, as Dr. Trudeau discovered, are necessary for protection against this disease. It is always found to develop in



abundance among people who live in dusty air. The dusty trades are those in which the workers have a high death rate from consumption.

What is true of man is largely true of animals. Whenever cows live on the range they have no consumption, but



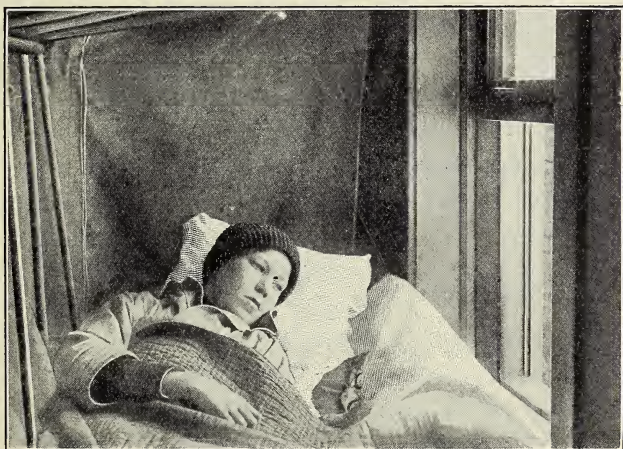
SUNSHINE MAKES HEALTHY BOYS AND GIRLS

These children are regaining their health by exposing their bodies to air and sunlight

when they are kept in warm barns they develop the disease. Dr. Trudeau found that rabbits inoculated with tuberculosis recovered in the open air, but speedily became sick and died when confined indoors.

All this goes to show that dirt, dampness, and darkness

are three of the most active friends of the tuberculosis germ. Where they are found the germ is apt to flourish. Sunshine, pure air, and cleanliness are its greatest enemies. Complete rest and fresh air are the best medicines.



FRESH AIR MAKES SICK CHILDREN WELL

**Health Crusaders Forward!** Dr. Trudeau and others have taught us that consumption not only can be cured but also may be prevented. The war against consumption has meant one victory after another. It used to be called the Captain of the Hosts of Death because so many people died of it; but every year we hear the wonderful story of the ever smaller number of people who have it and the

larger number who recover. Within the last twelve years the death rate from tuberculosis in some cities has been reduced 50 per cent. One reason why this war is so successful is that people, especially children, are forming good health habits.

The Canadian Tuberculosis Association is doing splendid work throughout the Dominion by helping in the prevention and cure of tuberculosis. Not only in Canada, but also in far away Japan and Australia and other distant lands, children are fighting in this great war. Anybody who keeps the laws of health is helping the good work along.

*To avoid Consumption*

1. Drink milk which has come from healthy cows and which has been pasteurized.
2. Live in the open, fresh air as much as possible.
3. Avoid poorly ventilated rooms of all kinds.
4. Sleep in a well-ventilated room or on a sleeping-porch.
5. Work and play in a place where the air is clean and pure.
6. See that your schoolroom is well ventilated.
7. Do not spit on the floor or allow others to do so.
8. Avoid close contact with consumptives, especially during your years of childhood.
9. Drink plenty of milk and eat nourishing foods.

10. Do not neglect colds and coughs.
11. Avoid getting the feet wet and becoming chilled.
12. Do all the health chores which your teacher recommends.

### *Remember*

1. Dr. Trudeau was a hero and a good citizen.
2. Tuberculosis is being conquered every day.
3. Forming health habits will banish tuberculosis from the world.

What other facts do you remember from the reading of this chapter?

### *Health Habits*

1. Sleep with your windows open.
2. Drink a quart of milk every day.
3. Keep your weight up to normal.
4. Avoid spitting.
5. Live in the open air.

Name other health habits that will help you to prevent tuberculosis.

### *Things to Do*

1. Tell the story of Dr. Trudeau.
2. Report to the class other incidents from Dr. Trudeau's life. The story of his life is told in "The Beloved Physician," by Stephen Chalmers (Houghton Mifflin Company), and in his autobiography, published by Lea and Febiger.
3. Write a health play, telling briefly the story of Dr. Trudeau's life. In it dramatize the vision of Dr. Trudeau on the fox-run.

4. Write to the secretary of your provincial department of health for information about the victory over tuberculosis in your province. What led to the victory? Does your province have a sanitarium? Find out all you can about it.

5. At Christmas time volunteer as a class to sell the seals from which the profit is used to fight tuberculosis. This is one way to help others. If these seals cannot be secured in your community, write for information to the Canadian Tuberculosis Association, Plaza Building, Ottawa.

6. Make a list of all the things we can do to avoid tuberculosis.

### *Review and Thought Questions*

1. How did Dr. Trudeau win a victory over tuberculosis?
2. What is the cause of tuberculosis?
3. Why is spitting a bad habit?
4. What has housing to do with the prevention of tuberculosis?
5. How is the Canadian Tuberculosis Association helping to defeat tuberculosis?
6. How else does life in the open air help us to be healthy and strong?
7. If cows are shut up in dark, close stables, do they develop tuberculosis? Why?



## CHAPTER III

### AWAY WITH COLDS

**Colds scarce at the North Pole.** It is not easy to explore the frozen North. To do this a ship must be built that can force its way through the drifting fields of ice. There is the long arctic night of six months and the intense cold, when the thermometer falls as low as 80 degrees below zero. When the long night is over there is a dash on sledges drawn by dogs across hundreds and sometimes thousands of miles of a dangerous world of ice and snow.

We might think that one of the dangers in making a dash for the pole would be colds and pneumonia, but this is not so. The explorers rarely have colds when they are far away from civilization. Colds begin just as soon as the men reach those settlements where people live in houses and where colds and pneumonia are common. The explanation is this: we do not catch colds from ice and snow and cold weather, but from people. Since people are scarce in the Far North, colds are almost unknown.

**The Cause of Colds.** Common colds, sore throat, and pneumonia are caused by bacteria that reside in the air passages. These bacteria, which usually begin in the nose, are likely to travel to the sinuses (large cavities in

the bones of the skull) and to the ears and eyes, or they may pass down to the throat and the lower air passages, causing laryngitis or bronchitis. The common name for bronchitis is "cold on the chest." Sometimes a cold ends with pneumonia, or inflammation of the lungs.



THE EXPLORER IN THE FROZEN NORTH SELDOM HAS COLDS

The bacteria which cause these troubles may be breathed in through the nose,<sup>1</sup> but they may get into the mouth by way of the hands or of knives and forks which have not been properly washed and rinsed.<sup>2</sup> The mist which is thrown into the air by coughing and sneezing is just as likely to carry bacteria as the sputum which one coughs up. Therefore, in coughing and sneezing, one should hold a cloth or paper in front of the mouth or nose. If nothing else is convenient, the hand may be held there, but it should be washed as soon afterward as convenient.

Since people carry colds, it is a good plan to stay away from everybody who has a cold. When children have colds it would be better for them and for their school-mates if they stayed at home. If children with colds stayed at home they might rest, sleep, and get plenty of fresh air. Then they would recover much quicker, and if they were not in school the other children might not catch the cold.

**Protection against Colds in Winter.** There are few colds in summer. The principal reason is that people work and play out of doors and have the windows of their houses open more than in winter. Living close together indoors in winter is the most common cause of colds.

As soon as the windows are closed in the fall the common cold begins. It continues without interruption until spring comes and people again spend much time in the open air. Both colds and pneumonia are most prevalent in the colder months of winter.



CARRYING A CLEAN HANDKERCHIEF  
HELPS TO PREVENT COLDS

To protect oneself in winter against colds it is necessary to keep in the best of health. The practice of the health chores is essential.<sup>1</sup> One of the very best preventives is breathing fresh air.<sup>2</sup> Sleeping with our windows

open and playing in the open air every day are very important.

To avoid Colds, Pneumonia, and Sore Throat. Here are some of the most important things to do in fighting these foes that approach in the fall and stay altogether too long with us:

1. Avoid people who have colds, sore throats, coughs, or pneumonia.

2. Rest and in case you are very ill send for a physician.

3. If you have a cold or a sore throat, notify your teacher when you get to school.

4. When you cough or sneeze, hold something before your face.

5. Wash your hands frequently and carefully. Use warm water and soap.



COVERING A SNEEZE PREVENTS THE  
SPREAD OF COLDS

6. Carry a clean handkerchief.

7. Avoid towels, cups, glasses, knives, forks, spoons, and plates used in common. When dishes are washed they should always be rinsed with clean boiling-hot water.

8. Keep out of hot, poorly ventilated rooms.

9. See that the floors are clean.

10. Avoid rooms in which there is much blackboard dust in the air. Dust of any kind irritates the nose and throat.

11. Do not sneeze or cough if you can avoid it.

12. Keep lead pencils or slate pencils out of your mouth.

13. Have a bowel movement every day.

14. Dress for the weather. Too many clothes are as bad as not enough.

15. Take a cold sponge bath in the morning. Rub the body briskly afterwards with a rough towel until you feel warm.

16. Sleep long hours.

**Treatment of a Cold.** There should be prompt treatment of a cold as soon as one feels it coming on. The important thing to do is to help the body to overcome the infection. The slight fever which so often marks the beginning of a cold shows that the cells of the body are working hard to destroy the invading bacteria. One of the first things to do, then, is to get as much rest as possible and go to bed early. The body is then free to use all

its energy to recover. One should eat lightly and take a cathartic so that the bowels may move freely. A hot bath before retiring and a hot drink, such as hot lemonade, help to relieve the congestion of blood in the interior of the body. If one feels ill the next morning, it is better to remain in bed.

It would be wise for every child coming down with a cold to stay out of school and rest as much as possible. It would also be kind to one's schoolmates to remain at home, for colds may be easily spread.

### *Remember*

1. Colds are uncomfortable and expensive.
2. Colds are "catching."
3. Much can be done to prevent colds.

What other facts do you remember from reading this chapter?

### *Health Habits*

1. Keep away from people who have colds.
2. Keep clean inside and outside.
3. Get the fresh-air habit.
4. Get the cold-bath habit.

Name other health habits helpful in preventing or treating colds.

### *Things to Do*

1. Keep a graph of the absences in your room, like the one on the opposite page, for every month of the year. What does

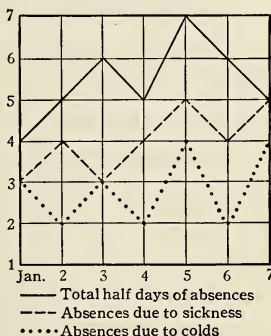


the record show for each month? What percentage of the absences were due to sickness? What percentage of the absences due to sickness were caused by colds? Make a graph for the year, giving the summary for each month. Make a definite record of the time when schoolroom windows were closed in the fall and opened in the spring. Make a summary of all the things you learned from this year's study. Write up the record for the year in an interesting way and offer it to some local paper for publication.

2. Prepare a five-minute talk for a lower grade on the prevention and treatment of colds.

### *Review and Thought Questions*

1. What causes colds?
2. Why are arctic explorers and hunters who live in tents or rough houses less likely to have colds than those who live in heated houses?
3. Why should we avoid people who have colds?
4. How may colds be prevented?
5. What is the best home treatment for colds?
6. When do colds seem most common?
7. What may we do to protect other people from colds?
8. Why are colds important?
9. What diseases may follow a cold?
10. What percentage of absences due to sickness were caused by colds according to the diagram above? What percentage of the total number of absences were due to colds?



## CHAPTER IV

### PROTECTION OF CHILDREN AGAINST ILLNESS

**The Work of Jenner.** It was an English physician, Edward Jenner, who made the discovery which now protects us against smallpox.

It happened that he lived in a dairy country and that from time to time there appeared among the cows a disease known as cowpox. Often milkers with slight cuts on their fingers contracted the disease. It was well known among doctors that those who had cowpox did not catch smallpox; Jenner was not the first to notice this, but he was the first to investigate it scientifically. In 1796 he took some matter from a cowpox sore, and with it he inoculated James Phipps, a healthy boy. Six weeks later, and again several months later, the boy was inoculated with smallpox from matter taken from a smallpox patient. No sign of smallpox followed. This method of protection against smallpox was called vaccination.

About ten years after this, Jenner sent a book, describing his method of vaccination, to the Six Nations Indians. The deep appreciation of the Indians is shown by the closing sentence of their letter of thanks to

Jenner: "We send with this a belt and a string of Wampum in token of our acceptance of your precious gift, and we beseech the Great Spirit to take care of you in this world, and in the land of spirits." The book which Jenner sent to the Indians is now preserved in Ottawa.

**Vaccination a Preventive of Smallpox.** Nowadays smallpox is an uncommon disease in Canada. Many doctors have never had a case on their hands. But this great change is only the result of constant vigilance in the matter of vaccination. Many schools and colleges require pupils to be vaccinated before they are enrolled.

In 1924 a man in Windsor, Ontario, died of smallpox. Two weeks after his death many of those who had been in contact with him developed the disease. People in Windsor and in the surrounding country flocked to doctors, and very shortly no less than fifty thousand had been vaccinated. All together there were in this district 67 cases of smallpox and 32 deaths.

The important point to note is that all those who died had not been vaccinated. This shows the importance of vaccination.

Any community can determine for itself whether it will run the risk of having smallpox. Science has shown that smallpox is unnecessary if citizens will be vaccinated. Outbreaks of the disease today are usually evidence of the indifference of citizens to well-known facts of hygiene.

Canada, in common with the rest of the world, owes Jenner a debt of gratitude. Only recently a small fishing town in Japan, ravaged by smallpox which was finally brought under control by vaccination, erected a monument to him. And so throughout the world he has helped free mankind from a dreaded disease.

**The Conquest of Diphtheria.** One of the diseases of childhood that very much resembles a cold, especially at the beginning, is diphtheria. The early signs are those of sore throat with or without grayish-white patches on the mucous membrane of the throat, tonsils, or palate. The illness may be so severe that it becomes difficult for one to take nourishment or to breathe. Until within a short time this has been a great scourge to childhood. Now, because of the many experiments and discoveries that have been made, it seems probable that soon diphtheria will be as rare as smallpox.

The conquest of diphtheria began with the discovery of the bacillus, or tiny rod-shaped organism, which causes the trouble. These bacilli were found in the secretions of the nose and throat. This discovery finally led to the discovery of an antitoxin. It was found that healthy horses inoculated with the toxin, or poison, manufactured by the diphtheria bacillus at length became immune to diphtheria. This fact was due to the increased amount of antitoxin in the horses' blood. They had built up a resistance to the disease. The next step was to secure

some of this antitoxin and inject it into the blood of those who were suffering from the disease. This remarkable discovery has saved the lives of many children and has made diphtheria a much less dangerous disease.



MILK IS A HEALTH BUILDER

"We drink plenty of milk to keep us strong and healthy. We have individual cups"

**The Schick Test and Prevention of Diphtheria.** The most recent discovery aims to prevent diphtheria entirely. Dr. Schick found that many children were immune to diphtheria: that they would not take it because they had

a sufficient amount of antitoxin in the blood. Through a very simple skin test, now called the Schick test, it was found that some children were susceptible to the disease. After finding out that a child may catch diphtheria, it is a very easy matter to make him immune. This is called immunizing him. The process of immunizing a susceptible person is to inject a small quantity of the immunizing substance into the arm three times.

In this way all the children of the land may be protected against diphtheria.

Protection by Health Habits. Since bacteria are responsible for diphtheria, one way to protect yourself against this disease is to form habits that will make it difficult or impossible for the bacteria to be transferred to you. Health habits that help to prevent diphtheria will help to prevent other illnesses also.

Here is a list of things to remember, to avoid diphtheria:

1. Avoid those who have sore throats.
2. If your throat is sore, report it to your parents and teacher.
3. Do not use towels, cups, glasses, spoons, forks, lead pencils, or slate pencils in common.
4. Do not put pencils and similar articles into your mouth.
5. Keep your hands clean.
6. Do not neglect sore throats.
7. Be immunized if you are not already immune.



**Scarlet Fever.** Scarlet fever is another communicable disease of childhood. The child ill with scarlet fever has sore throat, fever, headache, and other aches, and in a few days a peculiar rash usually appears on the neck and the



PLAY IN THE OPEN AIR HELPS TO PREVENT DISEASE

upper part of the chest and then spreads to the entire body. Scarlet fever usually shows itself early in fine red spots which tend to run together.

It is maintained that the germ of scarlet fever has been found, and that it is possible to prevent and cure the disease with a serum. A method has been discovered of testing children to find out who are immune. It is well

known that the contagion is in the discharges of the throat, ears, and nose. Scarlet fever may be caught by coming in contact with some person who has it. It is sometimes spread through the milk supply. This can happen only when somebody who handles the milk has the disease. It is spread by coughing and sneezing also.

It is not safe for one to go back to school until at least five weeks have passed from the onset of the sickness, and the throat and ears are normal. The advice of a physician should be followed.

**Measles.** Measles usually begins, like a cold in the head, with fever, running nose, watery, inflamed eyes, and sneezing. A rash appears on the third or fourth day.

One reason why many children have measles is that the disease begins just like an ordinary cold. Measles is not suspected until the eyes become redder and feel more as if they had sand in them than they do with an ordinary cold. A dry, irritating cough also leads one to suspect a cold. A few days later the eruption appears. It is during this period of fever and aching when the light hurts the eyes and the throat is sore, before any eruption is seen, that the danger of catching measles is greatest.

Measles is spread by the secretions of the mouth and nose. Whenever a person with measles coughs he sends mists full of bacilli into the air for a space of many feet in the direction he coughed and for a few feet in other directions. Therefore a person suspected of having measles

must from the very beginning keep away from children. A child who has been exposed to measles had better stay at home for one week, beginning one week after exposure to the disease. Whenever he coughs, from the time of the first cough, he should hold something in front of his nose and mouth. Sneezing also spreads disease and should be handled in about the same way.

**Whooping Cough.** Whooping cough begins like any other cough and for a time is usually thought to be a case of ordinary bronchitis, or cold on the chest. Then it is noted that the coughing comes in spells, and that the spells come at night; next, that the child coughs until he becomes nauseated. (It may be a week later before the whooping starts.)

Whooping cough is hard to control, because the contagion is greatest at the very beginning of the disease, which may be two or three weeks before the whooping begins. Since the disease is spread through the secretions of the throat and bronchial membranes, it is evident that, as in other diseases, children should protect themselves from coughing and sneezing.

German measles and mumps are two other diseases that are spread in the same way.

**Prevent and postpone Children's Diseases.** There was once a very foolish belief that since every child must have the diseases of childhood sometime, it was a good thing to have them over with as early as possible. There was

also the belief that little children had these diseases more easily than they would in later life. Sometimes children were purposely exposed so that they might catch disease.

We now know that little children do not have the resistance against disease which they have later in life. Whooping cough is a dangerous thing during the first year of life. The danger decreases every year thereafter until adult life is reached. The same things are true of practically all the other diseases of childhood.

In protecting ourselves and others from disease it is always well to remember these things:

1. Communicable disease always starts with somebody who is sick.
2. Avoid people who are sick.
3. Avoid people who cough and sneeze.
4. Avoid the common use of dishes and all things used by other people.
5. Protect other people by keeping away from school if you are ill and by having good health habits.

*Remember*

1. Smallpox can be prevented.
2. Vaccination once every seven years is an almost sure protection.
3. A cold may be the beginning of a serious illness.
4. Take good care of a cold when it begins.

What other facts can you remember?

*Health Habits*

1. Avoid people with bad colds.
  2. Protect your brothers and sisters by keeping them away from children who are ill.
  3. Avoid persons who have a communicable disease or who recently have had one.
  4. After being ill get plenty of sleep.
- What other health habits will you add?

*Things to Do*

1. Tell the story of Edward Jenner. Find out more facts about his life and work.
2. Write to your provincial department of health for more information about vaccination.
3. Write to the secretary of your provincial department of health for their rules and regulations about the control of communicable diseases. Read them and report to your class.
4. Have a committee get from the health department warning cards and booklets on contagion. What are the early signs of each of the diseases of childhood? What are the quarantine rules concerning them?

*Review and Thought Questions*

1. What led Jenner to think of his method of preventing smallpox?
2. What illnesses of childhood begin as colds?
3. Why is diphtheria decreasing?
4. How are scarlet fever, measles, and whooping cough spread? How may they be prevented?
5. What has been the result of vaccination against smallpox?

## CHAPTER V

### THE WELFARE OF BABIES

Nathan Straus, "The Friend of Babies." Years ago a boy by the name of Nathan Straus came to this continent with his parents from Europe. He was poor, but by hard work and perseverance he became a very successful business man. Finally he became a very rich man. He lived in a beautiful house and had every luxury that anyone might wish.

In his days of prosperity Nathan Straus did not forget the poor and the sick. In the large city in which he lived, there were many families huddled together in the crowded tenements. Many of the babies were ill because they could not get pure milk or enough of it. At his own expense Mr. Straus set up booths in the public parks where mothers could get pasteurized milk at half price. Milk for sick babies was given to the health department also and to the physicians who attended the babies. Almost at once a change could be noticed. Babies whom everyone expected to die got well.

Mr. Straus was interested not only in providing pure milk for babies, but in establishing playgrounds and in the improvement of the health of children everywhere.



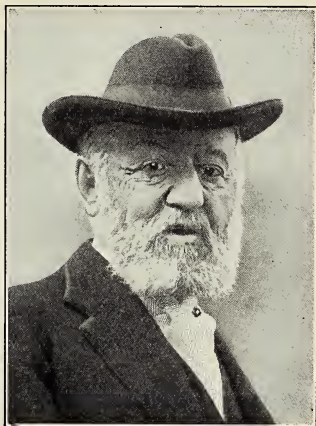
Not only in his own city but in other cities and even in other countries, such as Great Britain, Germany, and Belgium, Nathan Straus was ready to help with heart and purse. When different nations of the world had a great congress to think of ways of helping the babies, Mr. Straus was one of those most active in working for its success.

Nathan Straus gained the name of "The Friend of Babies."

Safer Every Year to be a Baby. Twenty-five years ago it was rather dangerous to be a baby. About one baby in four died before having a birthday.

The ordinary man or woman at the age of seventy had a better chance to live for a year than a baby. Now in the more healthful communities only one baby in twelve dies. This is because people know so much better than they once did how to take care of babies. Every year it is safer to be a baby.

**Good Food for the Baby.** The first business of the newborn baby is to grow. To do this he should not do much



NATHAN STRAUS

A friend of babies and children

for the first few weeks of life but sleep and eat. The feeding should be by schedule. Since the stomach needs rest, the time between the feedings should not be less than three hours. As the baby grows older the time should be increased to four hours. The welfare of the baby is so upset by the fatigue of the mother that he should never be fed more than once a night during the mother's sleeping hours. As soon as possible he must be trained to go without food from the mother's bedtime until her waking time.

The best kind of food for the baby is breast milk. (It not only has just the right substances needed for growth but is also fresh and clean.) The Board of Health in one city says that among the babies that die, 85 per cent are fed artificially. If breast milk is not available for a baby, some substitute milk may be used, but it must be kept clean, fresh, cold, and free from disease-producing germs. Milk is a perfect food for a young child. (After the age of six months other foods should be used in addition to the milk.)

The only serious deficiency in milk is iron. This need is satisfied for a few months by the iron in the baby's body. After that he may get iron from vegetable juices.

The food given a baby should contain plenty of lime, because much of his growth in babyhood is growth of bones and teeth, and for these lime is required. Milk, cereals, bread made from whole grains, and most vegetables are rich in just the kind of lime a baby requires for

good teeth. The formation of teeth of good quality is more important to the baby's health than is the cutting of teeth.

**Healthy Babies gain in Weight.** One of the very best ways of knowing whether a baby is doing well or not is to weigh him regularly.

If he loses in weight or does not gain over a period of several weeks, it is a sign that his food does not agree with him or that something else is wrong.

The healthy baby gains in weight rapidly. At the age of five months his weight at birth should be doubled, at the thirteenth month it should be trebled.



A HEALTHY BABY

He is gaining steadily in weight

**Protection against Contagion.** Most babies are born healthy and they would usually remain so if they had the best of care. It is important to protect babies against illness. Such sickness often weakens the body for life. It is hard to care for sick babies.

Babies find the summer months particularly trying, because they cannot stand the heat well and also because their food is often spoiled. Heat also brings the filthy fly. With the better care of babies the summer has become less dangerous. As the cold weather approaches, trouble from coughs, colds, and pneumonia increases. To check this tendency babies should be kept away from people who have colds. Babies should not be kissed or have their faces, mouths, and noses rubbed against those of others. Floors should be kept very clean, because babies crawl on the floor and also because they often put their hands in their mouths. [In careful homes today babies are kept in pens so they will not come in contact with the floor.]

Under no condition should a baby ever be exposed to any form of contagion. Even if a child must have measles, it is much better for him to have the disease when he is five years old rather than when he is five months old. Diseases of childhood should be postponed as long as possible. It is, of course, even better if they can be entirely prevented.

**Fresh Air and Sunshine.** Babies should sleep in well-ventilated rooms. The temperature should not be too hot. They should get the fresh air whenever the weather is fit, but too much exposure in order to toughen a baby will do more harm than good. [Usually babies are clothed too warmly. This makes them feel very uncomfortable and fussy. It also makes them more susceptible to colds.]

It is now known that babies need sunshine to be healthy in the same way that plants need it to grow. Bright sunshine should never be allowed to shine into the baby's eyes, because it is likely to injure them.

**Babies need Training.** Mother Nature sees to it that a baby learns and develops. Babies usually sit up at the



FRESH AIR AND SUNSHINE MAKE BABIES GROW

age of seven or eight months, crawl at nine or ten months, and walk at twelve to sixteen months. They can usually say "mamma" when they are a year old. At the age of five to nine months they ordinarily cut their first teeth.

Although a baby can do so many things without being taught, he needs to be trained. It is during babyhood that children sometimes hold their breath, have tantrums, and show violent emotions. These may be very harmful in



the later life of the grown-up man or woman. Such outbreaks by a baby should never be encouraged. If every time a baby cries violently he is picked up, he will soon form the habit of getting his own way by crying. Often



**TRAINED HELPERS**

These girls are receiving diplomas for their work in mothercraft. They have learned how to take care of babies

babies have tantrums to get their own way. If nobody pays any attention to them the habit will soon be broken. When such bad habits are allowed to develop in childhood and infancy, a child may grow up to be nervous.

No baby or little child should ever be badly frightened.



Shocks due to fright are often responsible for night terrors. Many people suffer throughout their lives because of some intense fear which they experienced in early childhood.

Every child to be healthy must be trained in good habits of sleeping and eating.

### *Remember*

1. Every day the world is becoming a safer place for babies.
2. Nathan Straus was a friend to babies.
3. Babies need good food to be healthy.
4. All babies need careful training.

What other facts do you remember from the reading of this chapter?

### *Health Habits*

1. Never kiss babies on the mouth.
  2. See that the baby has regular hours for feeding.
  3. See that the baby has regular hours for sleep.
  4. See that the baby has fresh air every day.
- Name other health habits that babies ought to form.

### *Things to Do*

1. Offer to take care of your own baby brother or sister or some other baby in your neighborhood.

2. Write to your provincial department of health for some printed matter on the care of babies. Report what you learn to the class.

3. Make a study of the habits of a baby. Keep a written record. Does he go to sleep at the same time every day? Does

he take his nourishment regularly? What good habits or bad habits is he forming?

4. Tell the story of Nathan Straus. Find out more facts about his life.

*Review and Thought Questions*

1. Why do you think Nathan Straus was a good citizen? What was his greatest work?

2. Why is the world a safer place for babies than it once was?

3. Why is breast milk better for babies than cow's milk?

4. Is there a kind of cow's milk sold in your community especially for babies? What is it called, and how does it differ from the ordinary milk sold to families?

5. What can you tell about good food for babies?

6. How may babies be given fresh air?

7. What are some of the most important signs of health in babies?

8. Why do babies need to be trained?

9. What is the danger in disciplining young children by telling them stories about the "bogy man"?

10. What are some other wrong methods of training babies and young children?

11. Discuss the best methods of training babies.

## CHAPTER VI

### HEALTH AND THE SCHOOL

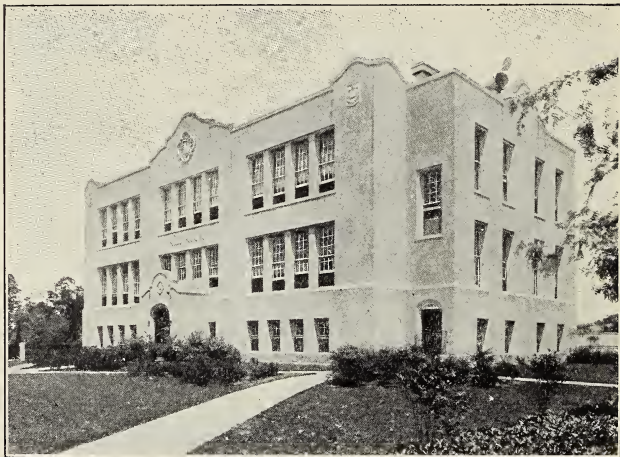
**The School Building.** On school days children spend nearly half their waking hours in the school. It is therefore very important that the school should be a healthful place for boys and girls if they are to develop into strong and healthy children.

The schoolroom and building should have all the advantages of the best kind of home. There should be plenty of window space to give the rooms light and sunshine. Each window should have window shades. There should be excellent ventilation, a temperature of about 68 degrees, comfortable and hygienic school furniture, drinking-fountains, a place to wash the hands and face, clean towels, and freedom from excessive outside noise. Our best schools today have large playgrounds.

**Prevention of Contagion.** The school may be a means of spreading disease in a community unless great care is taken. If a communicable disease breaks out in school, it may spread not only in the school but in the homes of the neighborhood. Epidemics are not spread in this way as much as they once were, because people know so much more now about the prevention of disease. In our best

cities the health of children is being furthered by these things:

1. Building sanitary schoolhouses.
2. Giving children attractive playgrounds.
3. Training children in good health habits.



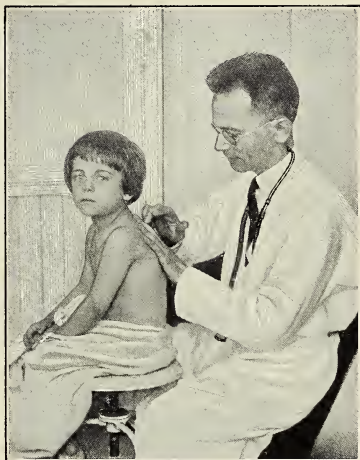
A MODERN SCHOOL BUILDING

4. Providing teachers, school doctors, and school nurses who early notice symptoms of illness and send pupils home and do not allow them to return until they are well. In this way contagion is prevented.

**The School Doctor.** The only work of the school doctor when he was first employed by school systems was to

prevent contagion. This is still a very important part of his work, but he is now doing a good deal in building up the health of the pupils.

In many schools there is a physical examination of every pupil each year, and as many other examinations as are necessary. Usually the school nurse assists in this, and sometimes both teacher and parent are present. Every machine needs to be examined from time to time to see whether any of the parts are in need of repairs. This is true of the human machine also. The doctor advises the child and others who have contact with him in home and school. Sometimes



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THE SCHOOL DOCTOR HELPS CHILDREN  
TO BE HEALTHY

he advises going to the dentist. This examination often leads to the correction of habits regarding food, to getting more sleep, or to forming other health habits to keep the body fit. There are many children who are not ill, but who could profit from the advice of the school physician.

In addition to the yearly examination, the doctor examines from day to day the children who may be referred to him because they appear ill or because the teacher calls upon him for advice.

**The School Nurse.** In many schools today there is a school nurse who assists the school doctor and the teacher in making examinations. Often she gives treatments for the itch, ringworm, lice, and other minor defects. One of her most important duties is to carry the advice of the school physician to the home and help the parents. This often means advising parents about the care of the teeth, the removal of adenoids, or the proper food for children. Incidentally, and often directly, the school nurse gives the pupils lessons on health.

**School Housekeeping by Pupils.** Every pupil may do much to make the school a healthful and attractive place in which to live. The janitor may do his very best to keep the buildings and grounds of the school in good condition, but he needs the help of every child. If children are careless, the school cannot be as healthful and attractive as it should be. Good housekeeping is needed in the school as well as in the home.

Here are a few things the boys and girls of any school may do to help:

1. Empty wastebaskets frequently.
2. Line wastebaskets to keep small bits of waste from the floor.



3. Put all waste paper into the wastebasket.  
4. Dust school furniture with a damp or oiled rag.  
5. Keep wash bowls or basins clean.  
6. Clean erasers out of doors.  
7. See that no crumbs are left around after lunches.  
8. See that school property is not marred or defaced.

Add to this list other things that you can do to make your school building and grounds neater and more sanitary.

**Canada's Fine School Buildings.** It is said by those who have travelled abroad that although Europe may excel us in many things, we have remarkable school buildings and equipment. Some of our school buildings are so magnificent that they are superior in comfort and often in beauty to the palaces of kings a few centuries ago. This is true only of our best school buildings and in those communities that have public-spirited citizens.

However, a good schoolhouse is not necessarily healthful. No matter how fine a school building may be, it still needs the kindly and intelligent care of boys and girls trained in good health habits and ideals of citizenship.

### *Remember*

1. A healthful school helps to make healthy children.
  2. School children can help to make their school healthier.
- What other facts do you remember from the reading of this chapter?

*Health Habits*

1. Do your part to make the schoolroom, building, and grounds cleaner and more attractive.
2. Play fair on the playground.
3. Adjust the window shades so that you do not face the light.

Name other health habits that should be practiced in school.

*Things to Do*

1. Have a committee make a health survey of the physical condition of your schoolroom, school building, and grounds. Are there enough wash bowls, soap, and towels? What do you need most? Suggest some things that the pupils of the school might do to better conditions.

2. Get up an entertainment to buy something for the school; for example, a sanitary drinking-fountain, or something else that is needed for the health of the school.

3. Elect a committee on ventilation to see that the temperature of the schoolroom is kept about 68 degrees.

4. Organize a health club. Elect a president, secretary, and treasurer. What problems will you discuss?

5. Get out a paper called *The Health News*. Elect an editor and reporters. Publish in your paper all the health news of your room and school; also insert other health news about the community.

6. Write health slogans.

*Review and Thought Questions*

1. Why is the condition of the school building important for health?

2. How would you describe a sanitary school building?

3. How may the school help to spread disease?
4. What may the school do to prevent the spread of disease?
5. What is your school doing to prevent epidemics?
6. What is the work of the school doctor?
7. How may a school nurse help to keep the school healthful?
8. What is your room doing in the way of school house-keeping?
9. Why is a wet cloth better for dusting than a feather duster or a dry cloth?
10. What is the most important thought in the last paragraph of this chapter?

## CHAPTER VII

### GOOD HOUSING

**Jacob Riis, a Good Fighter.** In one of the quaint towns of southern Denmark Jacob Riis was born in 1849. In that town the streets were narrow and paved with cobblestones. The houses were roofed with red tiles, and occasionally among the chimney tops could be seen the figures of long-legged storks. Jacob's father was the headmaster of a Latin school and hoped his son would be a scholar; but Jacob did not take kindly to school, and when he became twenty-one years of age, he resolved to seek his fortune abroad.

Finally he became a reporter on one of the leading New York newspapers, and regularly visited police headquarters. He soon began to learn about the great tenement district, with its dirty, crooked streets. In these tenements two million persons were huddled together in dark, filthy rooms. The heart of Jacob Riis was touched. He believed that if the people of New York knew the facts they would not allow little children to get sick and die because of the houses they had to live in. He told the stories of the tenements in the newspapers and in his books. One of these books was called "How

the Other Half Lives." It made a big stir. Soon better laws were passed so that sleeping-rooms could not be built or used unless they had windows.

**Good Housing and Health.** One day a member of the health department of a certain city began to put a pin in a large map of the city to indicate every place where there was a case of tuberculosis or other contagious disease. Into a similar map were put pins wherever there was known to be foul plumbing, filthy yard closets, damp, sunless chambers, overcrowding, and dirty yards. It was then found that the two sets of pins came in about the same places. Any good health department could prove the same thing. Good housing pays by making healthy citizens.

It must not be imagined, however, that all the bad housing is found in the city. It is worse there because of the overcrowding; but often houses in the country are so improperly built as to furnish insufficient light and air.

**Good Housing Requirements.** By good housing is meant houses in which people can live under conditions that make for health and where children can grow up to be strong and well. Here are a few of the most important requirements:

1. *Space.* The house should not cover all the ground on the lot. Some room should be left for a grass plot or a vegetable garden and a tree or two. It is best that some vegetation should grow where many people are to live.

2. *Site.* There should be protection from dampness. The house should be built on high rather than low ground. Moisture should be prevented from seeping up the walls from the ground below or down the walls from the gutters



IN THESE TENEMENTS MANY PEOPLE ARE HUDDLED TOGETHER IN  
A SINGLE ROOM

of the roof. Draining the ground around the house and providing a dry cellar and proper gutters and roof drainage will keep the walls dry.

3. *Sunlight.* The space around the house should be exposed to sunlight at some time during the day. Sunshine is needed to purify the air, the dust, and the surface of the ground. It is very effective in destroying those bacteria



that cause disease. The house must be so placed and arranged that sunlight can get into the rooms. It is needed there to sterilize the bedding, the carpets, and the dust on the walls and floors. Frequently the laws require



MODERN SANITARY TENEMENTS

that some space be left around each house and that air shafts and light shafts and court be so arranged and so large that no room shall be used as a bedroom unless it is lighted by daylight during the day.

4. Heating and ventilating. For comfort and health a house should not be too hot in summer or too cold in winter. Probably more harm comes from overheating houses than from not heating them enough. Overheating

is one cause of colds. Windows should be used freely for ventilation, especially in sleeping-rooms at night.

5. *Piazzas and sleeping-porches.* One of the reasons why people are healthier now than their parents were is that many of them spend much of their leisure time on piazzas. Sleeping-porches also have become more popular.

6. *Sewage.* The disposal of body and household wastes is one of the most serious of health problems. Unless these wastes are properly disposed of they become a menace to the health of a community. In cities these wastes are easily and properly disposed of through sewer pipes. In villages and rural districts, where outhouses and cesspools are used, the problem is more serious. An outhouse should be at least a hundred feet from the well and on land that slopes from the well. The same care should be taken in regard to cesspools.

### *Remember*

1. Jacob Riis was an ideal citizen.
2. The citizens of a city are responsible for bad living conditions in their city.
3. Every house should have plenty of sunlight.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Take an interest in good housing in your community.
2. Try to make your own house a model.

*Things to Do*

1. Find out whether there are any building regulations in your city or town. What are they?
2. Have a committee make a report on the housing in a block in your neighborhood.
3. Try to find out from your health department whether there is any relation between housing and health in your community.
4. Write to the Health and Cleanliness Council, Tavistock Square, London W. C. 1, England, asking for posters, pamphlets, and other material.

*Review and Thought Questions*

1. What is a good citizen? What did Jacob Riis do especially that made him a good citizen?
2. Do you have slums in your city? Why do they exist? What have some cities done to get rid of them?
3. How does the housing of a community affect its health?
4. Is there any bad housing in the country? Explain.
5. Why is the site of a house important? Explain.
6. Why should there be space around a house?
7. Why should the inside of a house be exposed to sunlight?
8. How do piazzas and porches affect health?

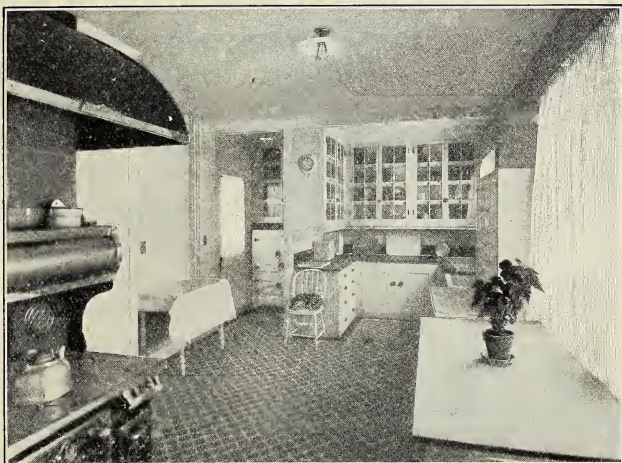
## CHAPTER VIII

### HEALTH IN THE HOME

**Importance of the Home.** Since we spend more hours in the home than in any other place, it is very important that it should be healthful. There are two things that are important for a healthful home. First of all, good health in the home depends on the kind of building that the home is in. In the previous chapter we learned that a house should be built on high ground, if possible have space around it, be well lighted and heated, and have good sewerage. A second thing that is equally important is the health habits of the people who live there. People whose homes are in rather undesirable buildings may be healthy if they live in the right way. Health habits help to make the home safe, healthful, and sweet.

**Methods of Cleaning.** Dust and dirt not only make a house unsightly but are often the means of carrying disease. Filth may be tracked into a house by the feet and deposited on floors, rugs, and carpets. Through carelessness it then may be transferred to the mouth and cause illness. Especial care should be taken to keep floors clean when there are little children who play on them. It is quite the fashion today to have in the house as little as

possible that will catch and hold dust. Carpets and heavy draperies are not used now as much as formerly. However, the use of the vacuum cleaner makes carpets much more sanitary and freer from dust than they used to be.



A CLEAN AND ATTRACTIVE KITCHEN

Feather dusters and dry dust cloths, since they keep the dust in the air, are not conducive to either cleanliness or health. Dustless dust cloths sold in stores are excellent but expensive. A dustless cloth may be made easily by moistening an old cloth with a little water or kerosene. The vacuum cleaner is one of the best devices for the removal of dust.

Flies, fleas, bedbugs, and cockroaches, because of their contact with filth and the possibility of their carrying disease, should be kept out of the house.

**Care of the Bathroom.** Unless a bathroom is kept very clean, it is likely to be a means of transferring disease. This is especially true of everything that people are in the habit of using in common. Sore throat, colds, grip, and other communicable diseases easily may be transferred by unclean doorknobs, faucet handles, toilet flush handles, and other bathroom fixtures.

It is necessary that members of a family should use individual towels, wash cloths, handkerchiefs, and toothbrushes. Everybody who has a cold or sore throat should use the bathroom in such a way as not to infect other members of the family. Washbowls should be flushed with hot water. A piece of clean paper may be used to turn on the faucets. Bathtubs should be thoroughly washed with hot soapy water and rinsed with clean hot water before a bath is taken. This should be observed especially when one is in a hotel. Bathrooms should be thoroughly ventilated every day, but should be comfortable enough so that a morning shower or sponge bath may be inviting.

**Washing Dishes.** The proper washing and wiping of dishes is one of the most important health habits of the home. This is a task which is often badly done. Dirty, soapless dishwater is too common. Dishes need to be



scraped carefully before washing if the water is to be kept fairly clean. If the dishwater is to remove the grease and food from the dishes, it should be soaped until it lathers. Since glasses and forks come in contact with the mouth, special care should be taken to wash them in very soapy water and thoroughly rinse them in hot water. Boiling water is really the only safe water to use, because it sterilizes the dishes. The dishwater should be changed very often, especially if the dishes are quite greasy. Dishes should always be exposed to sunlight if boiling water is not available.



RINSING DISHES WITH BOILING WATER  
IS NECESSARY FOR HEALTHY LIVING

### Care of Dishcloths and Towels.

To keep the dishcloths and towels clean and sweet-smelling they should be washed often. Dishcloths, especially, should be washed and rinsed each time after using and hung where they will dry. The towels and cloths should be spread out if possible where the sun will shine on them.

**Disinfectants.** Disinfectants bought at the drug store are commonly used for cleaning the sink and toilet. Many of these are deodorizers which may hide a sour or musty smell without cleansing thoroughly. If the plumbing is in good condition, all that is necessary for disinfecting



SUNLIGHT IS A DISINFECTANT

is soap, good clean water, air, and sunshine. If these are not effective the plumber should be sent for.

**Good Habits in the Home.** Although there is less danger of transferring disease through bad health habits in the home than in some public place like a hotel, there is always some danger. A person coming down with a bad cold or some other

contagious disease may transfer it to somebody else through careless habits. Among these bad habits are licking the fingers, using the dish towel as a hand towel, dipping the tasting-spoon back into the food, handling the handkerchief, and putting food back on the serving-plate after tasting. Some of these bad habits of people

who handle food are especially dangerous. Nobody should handle food without having clean hands.

Those who need to employ help in their kitchens should be especially careful to employ only those who are in good health and are scrupulously clean and hygienic in their habits.

Some cities that are active in protecting the health of their citizens require every person handling food in a public eating-house first to pass a physical examination. This regulation has become operative in many places in Canada.

### *Remember*

1. Healthy living helps to make the home happier.
2. Health habits count in making a home healthful.
3. Every child can do something to make home a happier and more healthful place in which to live.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Lend a hand to keep the house clean.
2. Remove rubbers on entering the house.
3. Hang clothes in their proper places.
4. Make your own bed.
5. Use a dustless cloth. Away with the feather duster!
6. Rinse dishes with boiling-hot water.

Make a list of other health habits for the home.

*Things to Do*

1. Make a list of good home habits. Mark yourself on each habit: *E* for "excellent," *G* for "good," *F* for "fair," *P* for "poor," and *Fa* for "failure."

2. Mark yourself each month on these habits. Make a graph to show your improvement.

3. Organize a householders' club. This is a club for boys. It will look after the safe disposal of ashes and garbage in the home and keep the lawn in good condition. What other things may a householders' club do?

*Review and Thought Questions*

1. What two things are quite essential for a healthful home?
2. How does cleanliness affect health?
3. What is the best way to furnish a house so that dirt will not collect easily?
4. Does it cost money to be clean? Explain.
5. What rules should govern those who handle food?
6. What are the possible dangers from a bathroom that is not kept clean? How may they be avoided?
7. Is dishwashing important for health? How should it be carried on?
8. What is a disinfectant? What are the best kinds to use?
9. What health habits should children learn at home?

## CHAPTER IX

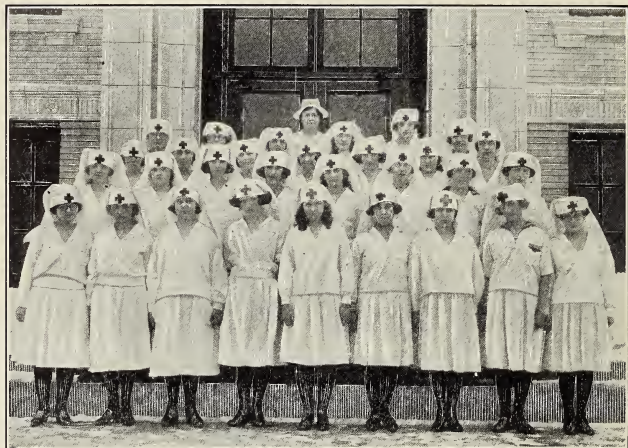
### HOME CARE OF THE SICK

**When Ill stay in Bed.** When we feel ill one of the best things to do is to go to bed and call in a physician. There is an old saying that "a stitch in time saves nine." If the doctor comes early he may often prevent a more serious illness. Some people have a foolish idea that when they begin to feel sick they should stay on their feet and do their regular work as long as they can. It is a good idea not to pay too much attention to every little ache and pain; but whenever we do not feel as well as usual, it is desirable that we get as much rest and sleep as possible. If the cells of the body are all in action they have less chance to defend the body against disease. In serious illness going to bed gives the cells of the body a good chance to fight. When a person gets weaker while staying in bed on account of illness, it is the disease and not staying in bed which causes the weakness. Going to bed early is one of the best ways to build up the body and prevent illness.

While there are some cases of sickness which can be taken care of better by nurses, the great bulk of the nursing must always be done by members of the family;

therefore every boy and girl should learn something about the care of the sick in the home.

**Care of the Bed.** Every boy and girl should know how to make a bed so that it is comfortable. The sheets and



TRAINED FOR SERVICE

These girls are graduating from a class in home nursing. The girls have learned the lesson of health and good citizenship

pillowcases should be kept clean and free from wrinkles. When a patient is seriously ill, the sheets should be changed in a way that will disturb him as little as possible. A good plan is to make up one side of the bed with the sheet folded in the center. Then the patient may be rolled over gently and the sheet be straightened out.



**Keeping a Record.** The good home nurse needs to know how to carry out the doctor's directions. One thing the physician always wants to know is how the patient has been since his last call. This often requires the keeping of some sort of record of temperature, pulse beat, etc.

The temperature is taken by placing the bulb of the clinical thermometer under the tongue and causing the lips to be closed and held together for five minutes. The thermometer is then read, and the reading set down on a record which shows the day and hour.

The pulse beat is counted for one minute. The finger is held on the pulse at the wrist. The pulse rate is set down in the same way.

The record should also show the appearance of the tongue.

One who is giving home care should know how to give a sponge bath to a sick person.

**Preventing the Spread of Disease.** In contagious diseases every sick person is a source of danger to other members of the family and the community unless he is properly cared for. The person giving home nursing in cases of contagious disease must use great care to see that the illness is not spread.

One way in which disease may be spread is through the bowel excretions. These should be removed promptly from the room and destroyed or disinfected so that they cannot pollute the water supply or be reached by flies.

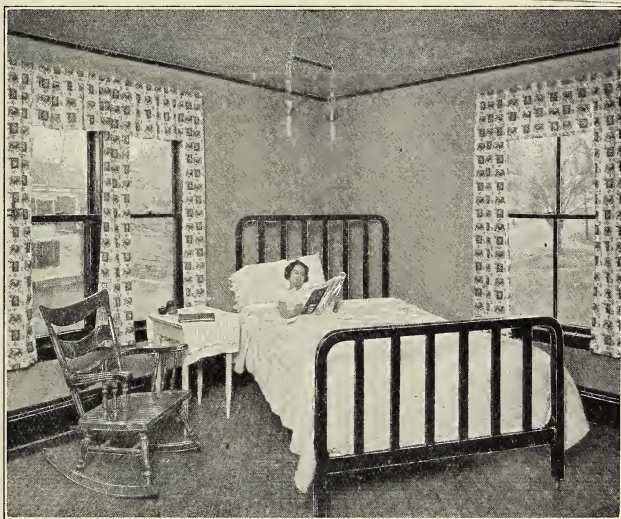
All persons who have no duties to perform in the sick-room must be kept out.

It is a good rule to keep all animals out of the sickroom. If the disease is one that is insect-borne, an effort must be made to keep insects, such as mosquitoes, flies, fleas, and bedbugs, from reaching the patient or his excreta. Sometimes this is more important than keeping people away. One of the things we have learned about yellow fever is that people can come into the sick chamber with safety but that mosquitoes must never be allowed in the room. The same is true of malaria. The mosquito that bites a patient who has malaria or yellow fever may, by biting a healthy person, spread the disease.

In case the disease is one that is spread by the sputum and the secretions of the mouth and nose, these secretions should be caught in handkerchiefs, cloths, paper, or in special cups, which must be protected properly, especially against flies. As soon as possible they must be sterilized either by heat or by chemicals. Sputum cups may be emptied in the toilet, but the cup itself must be sterilized afterwards. When paper and old cloths are used, they should be burned. Handkerchiefs and towels should be boiled.

Not only in tuberculosis, pneumonia, and diphtheria may the mouth secretions be dangerous: it is through them that scarlet fever, whooping cough, measles, and many other diseases are spread.

It is very important that the nurse wash her hands frequently and well with plenty of hot water and soap. The hands and face of the sick person should be kept clean and the hands should be washed before each meal.



A LIGHT, CHEERFUL ROOM HELPS THE PATIENT TO GET WELL

The dishes, particularly the cups, spoons, and forks, should be sterilized by boiling-hot water. Since we do not put knives into our mouths nor put saucers or plates to our mouths, it is not quite so necessary that they be sterilized. For safety it is a good plan to keep the patient's dishes separate from the other dishes of the household.

**Be Cheerful in the Sickroom.** Everything possible should be done to keep a sick person in good spirits. This is quite as essential for recovery as good ventilation and nourishing food. In caring for the sick, try to look on the bright side of life. If the patient is not too ill, reading beautiful stories, telling humorous anecdotes, or rendering soothing music all help him to recover. Keeping the sickroom clean, quiet, and well ventilated aids in keeping the patient in a good frame of mind, since it adds to his comfort.

*Remember*

1. Most illness can be prevented.
2. Good home care of the sick will usually shorten an illness.

What other things do you remember from the reading of this chapter?

*Health Habits for the Home Nurse*

1. Keep your hands very clean.
2. Keep smiling. Keep your patient smiling.
3. Keep the room clean and comfortable.
4. Keep insects, dogs, and unnecessary visitors out of the sickroom.
5. Keep the patient comfortable.
6. Be orderly.
7. Keep a record.
8. Learn your task. Do what you undertake properly. Do not undertake what you do not know how to do.

What other habits should home nurses have?

*Things to Do*

1. Demonstrate how to make a bed. Make a bed with a make-believe patient in it, or use a big doll for a patient.
2. Invite a Red Cross nurse or some other nurse to give you a talk on home nursing.
3. Find out all you can about the work of the Junior Red Cross.
4. Visit a hospital to find out more about the care of the sick. Report to the class.
5. Do something to make some sick children in a hospital happy. Talk about all the things you might do.
6. Organize a Little Mothers' Club.

*Review and Thought Questions*

1. Why is it desirable to stay in bed when ill?
2. Why is skill in home nursing desirable?
3. Why should a record be kept for the doctor? What should go into a record?
4. How can the home nurse prevent the spread of disease?
5. What can be done to keep a patient cheerful?
6. Why should a nurse be cheerful and keep her patient hopeful?

## CHAPTER X

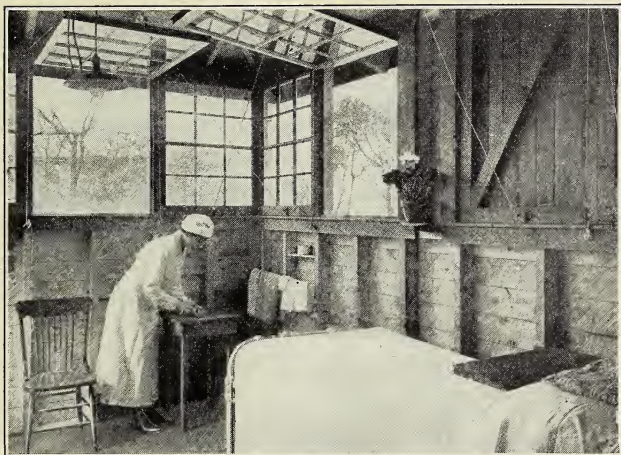
### WORKERS IN THE CAUSE OF HEALTH

The Red Cross in Canada. Our Canadian Red Cross was established in 1896 and within a very few years had a chance to prove its worth in the South African War. Its greatest achievement, however, was during the World War, from 1914 to 1918, when it earned a reputation of which it is justly proud.

It is not only in time of war that the Red Cross is active. Its chief aims are "the promotion of health, the prevention of disease and the mitigation of suffering," but its first and foremost duty is to the soldier in times of both peace and war.

The Canadian Red Cross Society has undertaken many new duties since the war for the promotion of health. Some of the more important of these are the establishment of outpost hospitals in the outlying districts of our Dominion; the operation of convalescent homes for ex-soldiers; the establishment of workshops for those crippled during the war; and the operation of seaport nurseries at Quebec, St. John, and Halifax, where future Canadian citizens are welcomed on their arrival in the country.





INTERIOR OF A SANATORIUM

**Canadian Tuberculosis Association.** Just before his coronation, the late King Edward wrote to our Governor General expressing concern for the health of his Canadian subjects. After some discussion His Excellency called a meeting in Ottawa and out of this grew the present Canadian Tuberculosis Association.

As the name implies, its object is the prevention and cure of tuberculosis throughout the Dominion. Many sanatoria have been built and, in twenty years, the death rate from tuberculosis has been cut in half. There is close coöperation between this association and our medical schools.

**The Victorian Order of Nurses for Canada.** Most important in health work in Canada are the nurses of this order which was founded in Canada in 1897 as a memorial of the Diamond Jubilee of Her Majesty, Queen Victoria. Into the homes of both rich and poor go these public-spirited women. They pay particular attention to the welfare of mothers and children, for they realise that we cannot hope for the next generation of Canadians to be healthy unless the boys and girls of today learn the lesson of healthy citizenship.

Scattered through the length and breadth of Canada, from Victoria in the west to Sydney in the east, are nearly one hundred districts of this order. The main object is to supply thoroughly trained nurses for the care of the sick, to prevent the spread of disease, and to promote good health. In addition to the work in the homes, Little Mothers' League classes are established in many of these branches, where girls are instructed in personal hygiene and the care of infants.

**Another Fine Body of Workers.** Not so many years ago, thoughtless boys and girls laughed at those who suffered from mental trouble. Nowadays we are more thoughtful and realise that such a person should receive our sympathy and help.

The Canadian National Committee for Mental Hygiene was formed in 1918, and since then has played its full part in the development of our country. One of the

first big undertakings of the committee was to make a survey of mental-hygiene problems in Manitoba. Since then similar surveys have been made in other provinces. With the help of the Canadian universities, research work has been carried on.

**Ambulance Work to the Fore!** One of the first voluntary health organizations to commence work in our country was the St. John Ambulance Association. Classes in ambulance work were conducted in Montreal and Quebec as early as 1883, just five years after the foundation of the society in England. It was not, however, until twelve years later that a separate Canadian branch was formed.

The main object of the association is to teach first aid, home nursing, hygiene, and sanitation. Those who successfully complete the course are awarded a certificate. About 200,000 of these certificates have already been issued.

The early years confronted the organizers with many difficulties, but these were overcome, and by 1910 the good work was being carried on in Ontario, Quebec, British Columbia, New Brunswick, and elsewhere. It would be difficult, now, to find a section of the country in which the association is not active. A great deal of assistance has been given by the railway companies, the Royal Canadian Mounted Police, and industrial organizations. These bodies realise the value of a knowledge of first aid and personal hygiene.

The Royal Life Saving Society. This society was founded in London, England, in 1891. The first Canadian branch was formed in 1908, and now there are branches in a majority of the provinces of our Dominion. The chief aim is to promote a knowledge of swimming, life saving, and revival of those apparently drowned. The society conducts classes in life saving and, on completion of the course, awards certificates.

The Story of Grenfell. It is not possible, in this chapter, to tell of all the many societies doing health work in Canada, such as the Canadian Dental Hygiene Council, the Canadian Social Hygiene Council, and the Canadian Council on Child and Family Welfare, nor has it been possible to say very much about those that have been named. There are few boys and girls, however, who would not like to hear something about the romantic work being done by the Grenfell Mission in Labrador. This territory belongs to our Newfoundland cousins.

Wilfred Grenfell was born in England, and while engaged in his duties as superintendent of the Mission to Deep Sea Fishermen, about forty years ago, he made a trip to the rocky coast of Labrador. There he found that the people were without medical aid of any kind, and, instead of being strong and healthy, were suffering from all kinds of troubles. Inspired by the terrible sights he saw, Grenfell determined to devote his life to helping these people. With money raised by lecturing,

he established hospitals, schools, and an orphanage. He is sometimes called "the Apostle of Labrador" and his life should be an inspiration to every British boy.

### *Remember*

1. Splendid health work is being done throughout our country by voluntary health organizations.
2. We should coöperate with these organizations.

### *Things to Do*

1. Read the *Canadian Red Cross Junior*.
2. Write to the St. John Ambulance Association, Victoria Building, Ottawa, and inquire about the certificates they issue.
3. Write to the Canadian Tuberculosis Association, Plaza Building, Ottawa, for "stickers."
4. Write to the Royal Life Saving Society for particulars about the classes this society conducts and the awards it makes to boys and girls.

### *Review and Thought Questions*

1. Which is the most active health organization in your community? Justify your answer.
2. What was the first big opportunity of the Canadian Red Cross Society?
3. Does the Red Cross do any work in times of peace?
4. What society is active in combating tuberculosis?
5. Why are so many big companies interested in the work of the St. John Ambulance Association?
6. Name the objects of the Victorian Order of Nurses.

## CHAPTER XI

### PURE WATER

**Water a Necessity.** There is an old saying that "we never miss the water till the well runs dry." This is another way of saying that it is only when we need water that we realize how necessary it is. If after many weeks there is no rain, the crops in the fields begin to dry up, and there is trouble in watering the stock. There may be difficulty even in getting water for the use of the household, because wells and city reservoirs are low. It is then that we begin to think how very necessary water is.

About 70 per cent of the body is water. Most of the food we eat is composed largely of water. Water is a necessity for everything that lives.

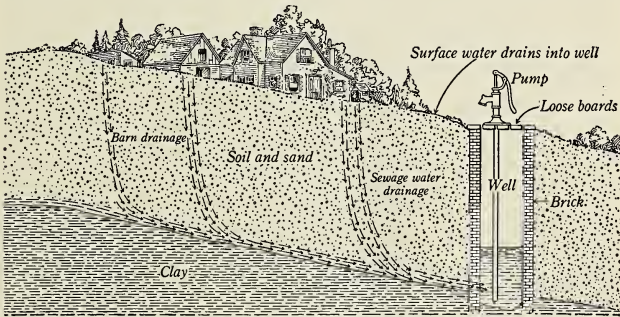
Nobody can be healthy without drinking plenty of water. Water improves the digestion, gives the stomach and intestines a much-needed washing out, and keeps the tissues in a good condition.

Every child who wishes to be healthy will drink from four to six glasses of water a day. Water should not be taken when food is in the mouth because it may lead to washing down food before it is mixed with saliva.



**Water easily Polluted.** The water we drink should be pure. Unfortunately water which is polluted with disease bacteria may be clear and cold and free from odor or taste that would warn one of danger.

Water is easily polluted by the bodily wastes of human beings. If all sewage could be kept entirely away from



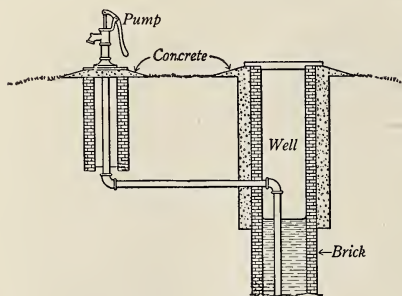
HOW WELLS ARE OFTEN POLLUTED

drinking-water, there would be almost no difficulty about having water free from bacteria that produce disease.

Cholera, dysentery, and typhoid fever are among the so-called water-borne diseases. Before there was any special care to provide pure water and milk, typhoid fever was a very common sickness in both city and country. Today, in those communities that look after matters of health, it has almost disappeared.

Typhoid fever has always been one of the dangers to

be feared in army life as much as the bullets of the enemy. Among the two hundred fifty thousand British soldiers in the South African War almost one in four had typhoid. Of the much larger number of men of the Canadian Expeditionary Force in the World War there was only about one case for every thousand men.



A SAFE WELL

Can you tell why?

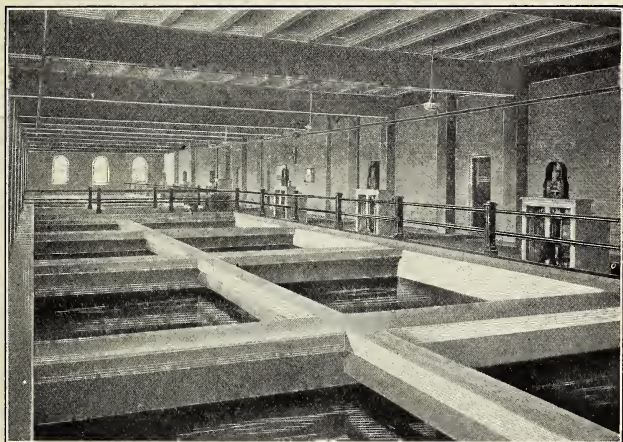
Care of the water and milk supply and inoculation against the disease were the chief causes of the decrease in typhoid fever.

To get Pure Water in the Country. Getting pure water in the country depends on keeping polluted material out of the well. The good well

must be a deep well. We very rarely find wells less than thirty feet deep that are safe. Water which comes from a deep well is more likely to be pure, because in its seepage through the many feet of soil bacteria are filtered out.

But a well may be deep and be polluted by surface water that flows into the top of the well. One way to prevent this is to cement the top of the well. It should be cemented above the ground, and the cement should run down through the seepy subsoil.

The location of a well is one of the common causes of pollution. It should be on the highest ground around the house and not within one hundred feet of outhouse, stable, pigpen, cesspool, or any place where slops may be thrown



PURIFYING THE WATER SUPPLY

The water used in most large cities passes through sand filter beds such as these

on the ground. In no case should the well be placed between an outhouse and a river or lake toward which the soil moisture is steadily flowing.

The poets have sung about the delights of drinking from the crystal waters of babbling brooks and springs. Brooks and springs often do look very alluring, but it

should be remembered that water is not good to drink simply because it is cold and looks clear. Far away, on higher ground, there may be a farmhouse or a camp that drains into the spring or brook. The beautiful-looking water may be as dangerous as a bottle of poison.

**Making Impure Water Safe.** When one is uncertain about the purity of water, one of the safest and easiest things to do ordinarily is to boil the water. Tablets of hypochlorite of lime, or of chlorozone, are sold in most drug stores. If one of these be dissolved in a gallon of water, and the water be allowed to stand for about half an hour, it will be safe to drink. Another good method is to put one drop of iodine into a quart jar filled with water and shake thoroughly. In twenty or thirty minutes the water will be ready to drink.

Any person may readily find out about the purity of a public water supply by sending a small quantity to the provincial health department for examination.

**Making Water Safe for Cities.** One of the most serious problems of cities is to get a sufficient supply of pure water. In some cities as much as three hundred gallons a day is used for every citizen.

Since wells and other private means of getting water have been largely done away with, and nearly every person gets his water from the same source, it is easy to see how impure water might cause sickness in an entire community. This is shown in the history of Philadelphia and

Camden, on opposite sides of the Delaware River. In 1905 Philadelphia, with a population of 1,417,002, had 724 deaths from typhoid. Camden, at the same time, with a population of 87,000, had but 15 deaths from typhoid. Philadelphia had a population sixteen times as large as Camden, but the number of deaths from typhoid was nearly fifty times that in Camden. The reason was that Philadelphia took its water from the Schuylkill River, which was contaminated. Camden got its supply from deep wells. As soon as Philadelphia improved the water supply, there was an immediate and striking decline in the typhoid death rate.

The means for providing good water in our large cities have so improved that now typhoid has almost disappeared. It is more common in the country.

To get a supply of water for a city the wells are sometimes driven to great depth. Often great reservoirs are made by buying the land in a valley and using it as a place to hold water. This often means the destruction of acres of farm land and villages. One of the great engineering tasks is to pipe this water from an artificial reservoir or from a lake to the city. This often requires tunneling through hills and mountains for many miles.

Such a water supply is constantly inspected to see that it is pure. To be certain that water is safe, it is usually filtered. Frequently this is accomplished by forcing it through a bed of clean sand that strains out the bac-

teria. Another method is to put into the water some kind of chemical which kills the harmful bacteria, such as chlorine. Cities today carefully guard their water supply.

Safety of Ice. Our supply of ice comes from lakes and streams or is made in special factories. Ice from either source is satisfactory if it is made from good water and is handled in a sanitary way. The artificial ice is sometimes preferred for home use, as it is usually manufactured from distilled or filtered water.

Even pure ice may be contaminated before it gets into the mouth. It may come in contact with dirty sidewalks or the soiled hands of drivers, porters, and waiters. All ice should be washed carefully before being used in drinks.

### *Remember*

1. Pure water is a necessity.
2. Many children drink too little water for healthy living.
3. Clear water may be dangerous.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Drink plenty of water every day.
  2. Never drink water from a ditch or stream.
  3. Sterilize your drinking-water if you suspect that it may be tainted.
  4. Use a private drinking-cup at school and at home.
- Name other health habits.



*Things to Do*

1. Make a study of your water supply. Find out something about the source of the supply, how it is purified, and how it is delivered to the citizens.
2. Demonstrate the sterilization of a quart of water by using iodine according to the directions in the text; also sterilize with hypochlorite tablets.
3. Make a survey of a dozen wells in your community. In how many cases should you have doubt about the purity of the supply for drinking? Why?

*Review and Thought Questions*

1. Why is water a necessity for human beings?
2. How may water in a well in the country be polluted?
3. How may a city water supply be polluted? What is the danger from the pollution of the water supply?
4. How is city water made safe?
5. Is it safe to drink from a brook? Give reasons for your answer.
6. Where should wells be located?
7. How may water be sterilized?
8. Is it safe to use ice in one's water or food?
9. In what ways may pure ice and water be contaminated before they reach the consumer?
10. Under what circumstances would knowing how to make a paper drinking-cup be desirable?
11. Why is it that no city with a poor water supply has ever grown great and prosperous?

## CHAPTER XII

### PURE MILK

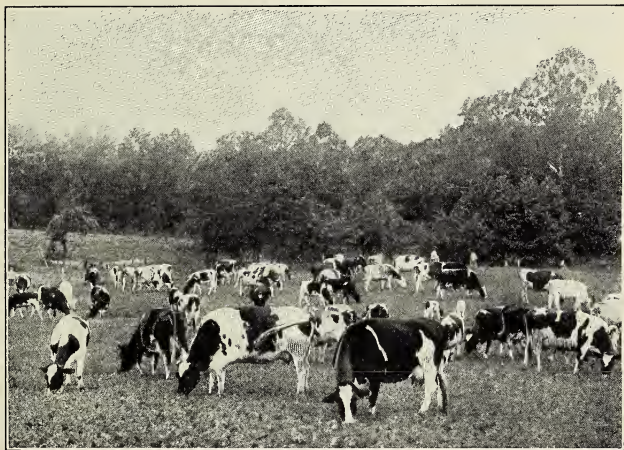
**Milk as a Food.** Human milk is a perfect food for babies. It is fresh, free from bacteria and dirt, and very nourishing. For these reasons it is usually better for babies than cow's milk or artificially prepared foods.

Cow's milk is an excellent food for older children. It is good fuel, because it contains fat and sugar. They need it to keep them warm and to provide energy for work and play. Milk contains water, protein, minerals, and vitamins. To be healthy, children should drink about a quart of milk a day. Children need also vegetables, fruits, cereals, eggs, and some meat.

**Milk easily Contaminated.** Like water, milk is easily contaminated and may spread disease. Milk is such good food, even for bacteria, that they live and flourish in it. Many of the bacteria found in milk are not injurious, but milk may be the means of carrying typhoid fever, tuberculosis, diphtheria, and other diseases. The health of any community depends to a very large degree on the purity of its milk supply.

**Healthy Cows.** The first requirement for pure milk is healthy cows. They should be fed good food, be provided

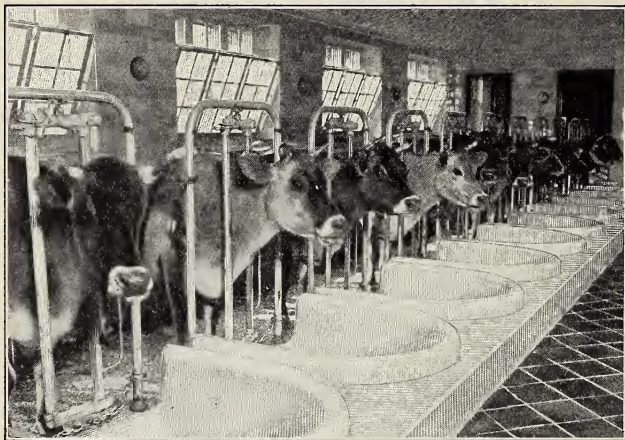
with plenty of pure water, and have a stable where there is good light and ventilation. The sick cow is a menace to any milk supply. Our very best milk farms provide a regular inspection by a veterinarian, and those cows that show the least sign of sickness are no longer used for dairy



TESTS SHOW THAT THESE COWS ARE HEALTHY

purposes. The tuberculous cow may transmit the disease through milk or butter. This is known as bovine, or cow, tuberculosis. When it appears in human beings it is usually known as bone, or gland tuberculosis. It is possible, through what is known as the tuberculin test, to find out whether cows are infected with tuberculosis.

Milkers should be Clean and Healthy. It is just as necessary for the milkers to be clean and healthy as it is for the cows. In the best dairies not only are the stables clean and airy, but the milkers are dressed in clean white suits. They are careful to wash their hands thoroughly



A MODEL COW STABLE FOR THE PRODUCTION OF PURE MILK

each time before milking. Pails, pans, and cans also are cleaned regularly with hot water. (None of the utensils should be exposed to flies. A clean milk pail may be contaminated by a dirty fly walking inside it.

(Contaminated milk is so often the cause of an epidemic of sickness that it is customary now for boards of health to investigate the milk supply as soon as there is an out-

break of any disease which may be carried by milk. [Any milker who has typhoid fever, diphtheria, scarlet fever, or septic sore throat should stop milking or handling milk.]

Even persons who are apparently healthy may carry disease through milking or handling milk. Such persons are called carriers. An interesting account of this method of transmitting disease is reported by the department of health of one place. There was an outbreak of typhoid fever on a local milk route. This milk was delivered by a father and his son. The father delivered milk to the patrons on one side of the street, and his son to those living on the other side. Curiously enough nearly all the cases of typhoid occurred on the side of the street served by the boy. It was discovered that both father and son had had typhoid. Although the boy was not sick, the bacteria of the disease lived in his body. He was a carrier; and since he was none too clean in his personal habits he was doling out typhoid fever to the buyers of milk. Carriers of disease bacteria should never be allowed to handle milk or food.

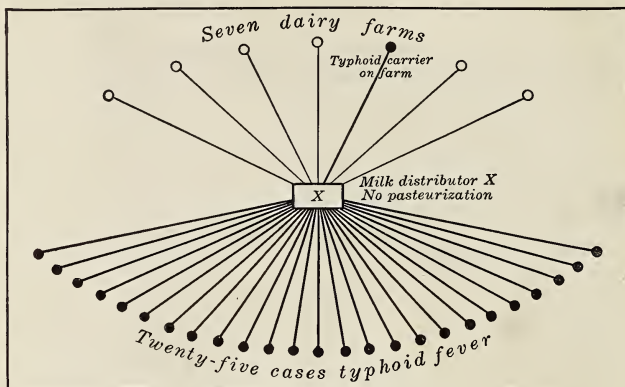
Pasteurizing makes Milk Safe. Fortunately a way has been found to insure the safety of milk through what is known as pasteurizing. This is done by heating milk to about 145 degrees and holding it at this temperature for thirty minutes. This is about 70 degrees short of boiling. It does not alter the taste of the milk nor lower its food value, and it does kill those bacteria which cause

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Larkin



disease. Pasteurizing does not prevent the milk from souring, but it will not sour so easily.

Where pasteurizing has become popular, there has been a marked drop in both the sickness and the death rates.



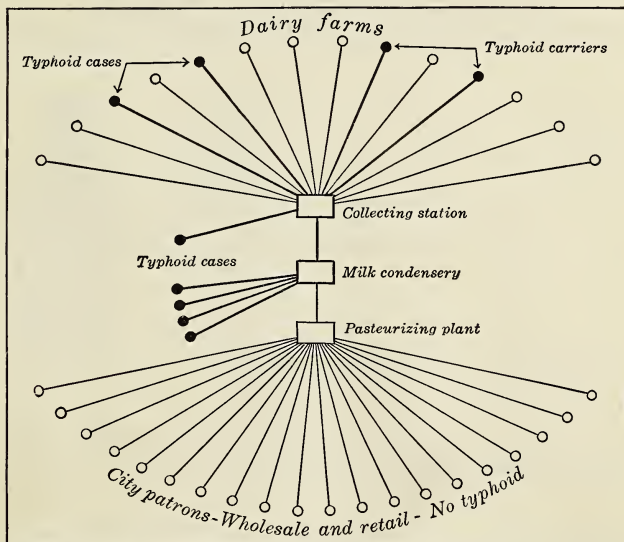
SPREAD OF TYPHOID FEVER

When the milk supply is not pasteurized a single typhoid carrier endangers the lives of many people

**Keep Milk Cold.** The best milk is that which is not over one hour old from the cow. [How long it can be kept without souring or spoiling depends on how clean it is and how cold it is kept.] Dirty, warm milk will sour in less than one day from the time it leaves the cow. Clean milk will not sour for days if it is kept at the right temperature. The reason for this is the inability of the bacteria which cause the souring to develop fast in cold milk. Immedi-



ately after milking, the milk should be cooled to 50 degrees and should be kept at or below that temperature until it is marketed. As soon as milk is delivered, it



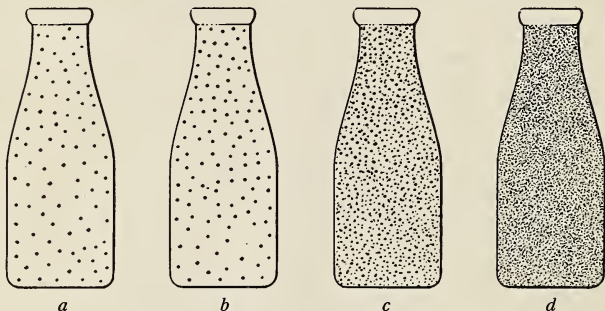
#### SPREAD OF TYPHOID FEVER STOPPED

Notice how pasteurization protected the customers

needs to be put into the refrigerator or a cool place if it is to be kept sweet and suitable for general household use.

**Milk Inspection.** All provinces do not have exactly the same laws concerning milk; but in many places there are inspectors who go about testing the milk in the market to

make sure that it comes up to certain standards. Inspection may go as far as an inquiry into the health of the cows, the condition of stables, and the way in which milk is handled from the farm to the consumer. Two of the common tests of milk are for its temperature and for its



BACTERIA IN MILK

*a*, fresh milk; *b*, milk kept on ice twenty-four hours; *c*, milk that has stood on a window ledge twenty-four hours; *d*, milk kept in a warm room twenty-four hours

amount of butter fat. It should be cold enough to limit the growth of bacteria, and the butter fat should be at least  $3\frac{1}{4}$  per cent of the total quantity.

**Remember**

1. Milk is an almost perfect food.
2. Milk is lacking in iron. This can be supplied by eating plenty of green vegetables.
3. Milk often is contaminated.

4. Milk should come from healthy cows and be handled by persons who have clean habits.

5. Milk spoils readily.

6. Spoiled milk is harmful, especially to babies and children.

What other facts do you remember from the reading of this chapter?

### *Health Habits*

1. Drink a quart of milk every day. Avoid tea and coffee.

2. Keep your milk in a clean, cool place.

3. Before buying milk make sure that it is pure.

Name other health habits concerning milk.

### *Things to Do*

1. Have a committee write to the Dairy Branch of the Department of Agriculture at Ottawa and ask for charts, posters, and pamphlets. Fasten them to your bulletin board. What suggestions do you get from them?

2. From the sources named above get information on how to make an iceless refrigerator. Make one as a part of your work in manual training.

3. Send a committee to your health department to find out how it protects the milk supply. Report to the class.

4. Visit the best dairy in your community. Report to the class on the methods used to supply pure milk.

5. Find out what grades of milk are sold in your neighborhood. What is the difference between Grade A milk and other grades?

6. Study carefully the diagrams on pages 88 and 89. What do they teach?

7. Make some posters about milk.
8. Make for your mother a book of recipes for dishes that can be made out of milk.
9. Make a scrapbook telling the complete story of the glass of milk you have on your table.
10. Make a scrapbook about milk drinkers—children, grown-ups, and animals.
11. Prepare an article for your local newspaper on the production and use of pure milk.

### *Review and Thought Questions*

1. Why is human milk better for babies than cow's milk?
2. What makes cow's milk superior to any other one food?
3. What other foods are desirable to supplement cow's milk?
4. How may a sick cow endanger the health of the community?
5. What care should be taken in milking?
6. What is a typhoid carrier? Should a typhoid carrier ever be allowed to handle milk? *Why?*
7. What is the process of pasteurizing? Does it pay? *Explain.*
8. Why should milk be cooled immediately after milking, and kept cool?
9. What is the danger in allowing the milkman to pour the morning's milk into an open dish placed on the doorstep? *N4*
10. Why is milk better food than lollipops? *milk is almost perfectly a perfect food. while we only heat producing it so so much when people drink the milk inspector is at it*

## CHAPTER XIII

### WAR ON INSECTS AND RATS

Small but Powerful Enemies. Because insects are so tiny they have often been regarded more as nuisances than as dangerous enemies. We now know that yellow fever and malaria are spread by the mosquito. Before this was known certain parts of the world were uninhabitable. This was true in parts of Italy on account of malaria. It is even believed that malaria was one of the causes of the fall of the Roman Empire. One of the men who did most to discover the part which the mosquito played in the spread of malaria was Ronald Ross, who spent many years in experimenting with the mosquito in India. For service to humanity he was knighted by the King. *he was in poverty*

Protection against Mosquitoes. The mosquitoes which carry yellow fever and malaria are the only ones which carry important diseases, and then only after the mosquitoes have become infected. The ordinary mosquito, called Culex, which is the one occurring in this country, is harmless although very annoying. Only the expert can tell the difference between these mosquitoes. It is wise to protect ourselves against all mosquitoes.

These methods for protection against mosquitoes are to be recommended:

1. *Destroying their breeding-places.* Mosquitoes lay their eggs in water or in damp soil. The eggs hatch out



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OILING A NATURAL BREEDING-PLACE FOR MOSQUITOES

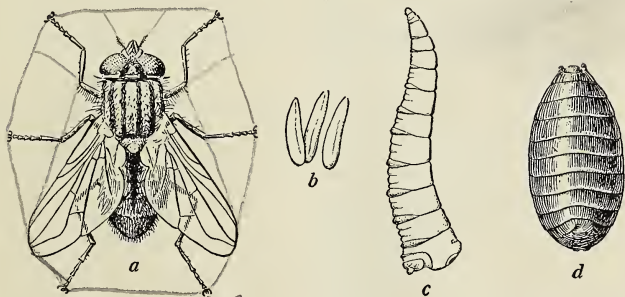
into wigglers and then develop into full-grown mosquitoes. Draining marshes and swamps, filling up holes, getting rid of rain barrels and cans that collect water, help to get rid of mosquitoes.

2. *Stocking the breeding-places with minnows.* It is estimated that each minnow will devour about one hundred and sixty-five wigglers in a day and many eggs.



3. Oiling breeding-places. The oil forms a film over the top of the water so that the wigglers find it difficult to breathe, and finally die. It also poisons them.

4. Using larvicides. These are poisonous liquids. They can be mixed with the water at breeding-places.



213  
STAGES IN THE LIFE HISTORY OF THE FLY

a, the adult fly; b, eggs; c, maggots; d, pupa stage from which a new fly comes

5. Screening. All houses in localities that have mosquitoes should be screened. Great care should be taken to keep mosquitoes away from the sick.

6. Repellents. Campers and others who are not so well protected as in their own homes put some kind of repellent on their faces and hands, or on cloths which they hang near their beds or carry in their hands.

**The Filthy House Fly.** One of the most filthy insects known to man is the house fly. It lays its eggs in garbage,

manure, or some other filth. The eggs hatch out into maggots. The maggots turn into hard objects called pupæ, that finally turn into flies. Flies have the most disgusting habits of wallowing in filth and then dropping into food or wiping their feet on it. Since filth usually contains disease bacteria, flies are a constant menace to health. They are responsible for carrying typhoid and summer complaint.

**Protection against Flies.** If there were no filth, there would be no flies; therefore the way to get rid of flies is to get rid of filth. Clean streets, alleys, yards, and barns prevent them from breeding. A favorite breeding-place for flies is manure. (This should be kept in air-tight containers or be spread very promptly on ground that is to be plowed.)

If flies cannot be prevented entirely from breeding, screens, swatters, traps, and fly paper should be used.

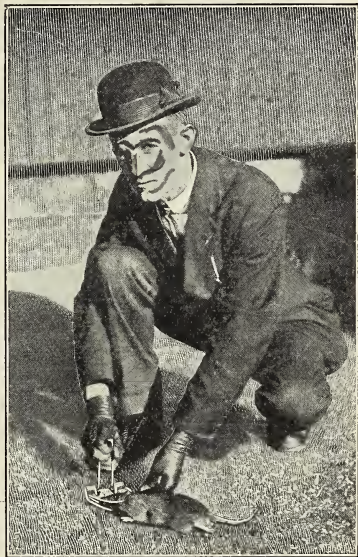
**The Louse.** Lice have been a great scourge to the world. The louse is responsible for the carrying of typhus fever, trench fever, and a number of other diseases. During the World War one of the serious problems was to keep the men free from lice. Bathing, frequent changing of underclothing, and inspection of the soldiers were some of the ways in which body lice were kept down. When our troops returned from France they were thoroughly deloused before being discharged. Whether in war or in peace, lice are dangerous.

<sup>JE</sup>  
 The head louse belongs to the same family as the body louse. It is a nuisance and may irritate the scalp. To get rid of lice the head should be washed with equal parts of kerosene and vinegar and combed. The kerosene kills the lice, and the vinegar separates the eggs from the hair. In the case of boys the hair should be cut short.

**Rats and Fleas.** During the fourteenth century twenty-five million people in Europe lost their lives from bubonic plague; some communities were nearly wiped out.

The cause of the disease was unknown then, but we know now that it was carried by

fleas. There are over five hundred different kinds of fleas in the world, but only the rat flea carries the plague. *below* *beaten* *Deat*



A MODERN PIED PIPER

This man is a professional rat catcher employed by a city Department of Health

Whenever the plague breaks out now, the first thing to do is to kill the rats. When the plague threatened in San

Francisco a few years ago, over a million rats were destroyed. Some of the large health departments have professional rat catchers and men who examine the rats in laboratories to find out whether they are infected with the plague. The rat flea cannot carry the disease unless first of all it bites a rat who has the disease.

Rats should be destroyed to prevent the possible spread of the plague and also because they are very destructive of property. One way to get rid of the rat is to starve him to death. Rat-proof buildings especially for food storage, and not exposing food where rats will find it, help greatly to destroy rats. Poison and traps also help to destroy them. Poison should never be placed within the reach of young children. Contrary to general opinion, dogs and cats are not very effective rat catchers.



A RAT FLEA, HIGHLY  
MAGNIFIED

[Fleas other than rat fleas can usually be kept out of the house by keeping floors and rugs clean and by keeping domestic animals, such as dogs and cats, away from the house.] They should have sleeping-places outside, and their beds should be cleaned regularly by spraying with a coal-tar disinfectant. A 3 per cent solution of creosol may be used to wash pets.

There is always danger in scratching fleabites because of possible infection. It must be remembered that any

break in the skin may be dangerous. Moist toilet soap smeared over the punctures will soon relieve the irritation.

### *Remember*

1. Many insects carry disease.
2. It is our fault if the mosquito becomes king.
3. The house fly is one of the filthiest of insects.
4. The louse is something more than a nuisance: he is an enemy of good health.

What other facts do you remember from the reading of this chapter?

### *Health Habits*

1. Protect against mosquitoes by draining the breeding-places and by using screens. See that no tin cans or other receptacles are left about to catch water and serve as breeding-places.

2. A clean house does not attract flies. Keep the house clean.

3. Flies breed in manure and garbage. Haul these away.
4. Keep the garbage can clean.
5. Lice breed on filthy people. Keep clean.
6. Fleas breed in the dust on floors and in carpets. Keep the house clean.

What other health habits would you suggest?

### *Things to Do*

1. Look over all your screens at home. Repair them. Report to the class.

2. Make a fly trap. Write to the International Harvester Company, Toronto, inclosing a two-cent stamp for directions.

3. Have a committee to inspect school and home premises to find out whether there is any stagnant water where mosquitoes may breed. Get rid of the breeding-places.

4. Have a rat-catching and rat-killing campaign.

5. Appoint a committee to write to your provincial department of health and to the Department of Agriculture, Ottawa, Ontario, for further information about rats, flies, mosquitoes, lice, and fleas.

6. Appoint a committee to report on the garbage cans and manure boxes around the school.

7. Write a play about the community that made war on rats or some of the insect pests referred to in this chapter.

8. Write some health songs in connection with this chapter.

9. Make some health posters.

10. Make a study of the mosquito problem in your community. Has your community ever been troubled by mosquitoes? To what extent did it have malaria? How was its mosquito problem solved or how is an attempt being made to get rid of mosquitoes?

As an example of what a city may do in promoting an anti-mosquito campaign, the work of the public-spirited citizens of Winnipeg is interesting. Winnipeg is surrounded by pools and marshes. These furnished a large breeding area. The mosquitoes were such pests during the spring and summer months that they became almost unbearable. The problem seemed to be so great as to be almost unsolvable, but there was a will to solve it and the citizens decided to get rid of the mosquitoes. A campaign committee was organized. Men prominent in the political and social life of the city and province took an active interest. The Young Men's Section of the Board of Trade gave their support. Newspapers,



clubs, and various civic organizations came to the rescue. Money was raised and the campaign began. Pools were oiled and ditches were dug. In 1930 more than 15,000 acres were covered with four oilings. The campaign began in 1927; and in 1930 the citizens of Winnipeg experienced almost total freedom from mosquitoes.

### Review and Thought Questions

1. How may we protect ourselves against mosquitoes?

2. Where do flies breed? Through what stages do they pass? Why are they a menace to health?

3. In what different ways may we protect ourselves against flies?

4. What was the danger from lice during the World War?

Are they a danger also during peace? How? What can we do to protect ourselves against them?

5. How do rats and fleas do harm? How may we protect ourselves against them?

5C Where may the fleas breed? d spray with what? E strength of solution for washing pets & danger of scratching and cure. 1A. how may yellow fever and malaria be carried. b name two parts of the world which were uninhabitable on account of malaria. c name the countries which ruled the then-known world, one cause of the fall of which is believed to have been malaria. d who spent his life experimenting and teaching the world of the dangers of the malaria mosquito.

## CHAPTER XIV

### KEEPING HEALTHY IN COUNTRY AND CITY

**Advantages of the Country.** People who live in the country ought to be healthier than those who live in the city, because the country naturally has more advantages.

First, there is more space in the country. The homes are not crowded together, and people rarely meet in crowds or in close contact. This helps greatly to protect them against the spread of disease, for bacteria which cause disease usually live in the bodies of people. As a rule communicable diseases are present constantly in the city, whereas in the country they come and go. There may be months and years when a country population will have none of them. The practice of the rules of health should fully protect people who live in the country.

Country people also have the chance to get more sunlight, fresh air, and exercise than city people. The houses have wide spaces between them, and the sun can get into them and all around them. The air is freer from dust. The work on the farms also takes men and women and children out into the open air. Nearly all country work requires more muscular exercise than city work.

Most of the food in the city must come long distances, with the chance of spoiling or being handled by many persons who may not always have the very best health habits. Milk, eggs, fruits, and vegetables are more likely to be fresh and clean in the country than in the city.



A VEGETABLE GARDEN HELPS TO INSURE GOOD HEALTH

**Disadvantages of the Country.** Nature does so much for the people in the country in the way of furnishing them with air, sunshine, and food that they are often quite careless about matters of health.

The man who lives in the country is not as healthy as he easily might make himself. He is likely to be careless

about the water he drinks. This he can guard by locating his well where it will be safe from pollution, or he can sterilize the water with heat or chemicals.

The country man is apt to be careless about his milk. This can be guarded against by providing proper care of



A SANITARY MARKET

stables and cows and modern ways of handling the milk. The milk may be heated, tuberculosis may be eliminated from the herds, and sick people and disease carriers may be eliminated from among those who handle the milk.

The man who lives in the country is likely to be careless about flies also. These can be guarded against by not permitting manure piles to become breeding-places.

Although he may think that he gets enough exercise, the man who lives in the country would be in better condition if he played more and went through some special exercises every day. Unfortunately he is likely to develop bad posture.

**Advantages of the City.** Although the city has many disadvantages, it is often a more healthful place in which to live than the country. The water supply is likely to be carefully purified by the city. Even the milk, which may be brought a long distance, is usually inspected and often pasteurized. Usually there are school doctors, nurses, and playground directors who look after the health of the children. Hospitals and clinics are helpful in making people healthy.

**Disadvantages of the City.** The people who live in cities are crowded together. Several hundred of them often live on a single acre. They come in close contact in the street cars and in halls of assembly. When any kind of contagious disease gets into such places, it spreads easily because of these close contacts. The houses being close together, sunlight and air do not have a chance to sterilize the earth, the paving, and the floors.

The darker-complexioned children of both the white and colored races have a tendency to have rickets because the dark pigment in the skin shuts out many of the health rays of the sun. They need sunshine and sometimes cod-liver oil, "bottled sunshine."



The people in the city are more liable to have pneumonia and consumption. This is partly because they do not get enough sunlight, since the buildings are too high and too close together, and partly because there is too much dust and smoke in the air and because there is poor ventilating in all sorts of houses.

The opportunity to take physical exercise in the city is not so good as it is in the country. The man in the country must exercise to make a living. The average person in the city can do his work of making a living without getting enough exercise to keep himself physically fit. Much of his work is done indoors. To overcome this difficulty cities provide parks, playgrounds, open spaces, gymnasiums, and athletic fields.

In spite of the many disadvantages of the city, recruiting during the World War showed that men from the city are as healthy as those from the country. This is probably because they are more careful in their practice of health habits.

**Health in Villages and Towns.** The conditions in villages and towns are likely to be less favorable for health than in either the country or the large city. The people live fairly close together, so that there is more chance for the spread of disease than in the country. Villages are apt to have no adequate way of disposing of sewage, garbage, and manure. Outhouses and stables are apt to be nuisances; water and milk supplies often are not protected.



**Good Health is Possible Anywhere.** Whether one lives in the country or city or in a village or town, he can purchase continued good health. The price he must pay is living according to the laws of health. This may cause a little trouble and take a little time, but the results will pay, for good health is more precious than gold and jewels.

Everybody, no matter where he may be, should practise the rules of personal hygiene. In addition to these there are particular rules of community health that need to be observed. These are some of the most important:

1. Protect the water supply from pollution.
2. Dispose of garbage safely. See that sewage is properly disposed of and protected from flies.
3. Guard against flies, mosquitoes, and rats.
4. Protect the milk supply by getting milk from healthy cows. Milk should be handled by clean people.

### *Remember*

1. The country has space and fresh air.
2. The city is usually careful about its water and milk supply.
3. To be healthy in either city or country, one must practise health habits.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Avoid drinking from brooks or streams.
2. Do all you can to protect the health of others.

### 3. Help to dispose of all garbage safely.

Name other health habits.

#### *Things to Do*

1. Make a list of all the advantages and disadvantages of the city in the matter of health.

2. Make a similar list for the country.

3. Have a debate on the proposition, Resolved, that the country is a more healthful place to live in than the city.

4. Appoint committees to make reports on the advantages and disadvantages for health of the district in which your school is located.

#### *Review and Thought Questions*

1. Why is space important for health?

2. Are crowds generally conducive to health or not?

3. What advantages do country people have in regard to foods? What disadvantages?

4. What careless health habits are especially dangerous in the country? Why?

5. Why do people who live in the country need physical exercise?

6. What health habits do city people need to form?

7. What are some of the disadvantages, from the point of view of health, a village may have?

8. What kind of argument would you make to show that good health is possible in either the country or the city?

*10 4 advantages of living in a city  
11 Give one card of slacks*

## CHAPTER XV

### KEEPING HEALTHY DURING TRAVEL AND VACATION

**The Vacation Habit.** One of the very best habits that people have is the vacation habit. It is usually a very good thing for one's health to get away from work for a time each year, enjoy a change of scene, and have a rest. A good vacation makes people fitter physically during the remainder of the year and helps them to accomplish more work.

It sometimes happens that one returns from a vacation in a worse condition than when he went away. One reason for this is overfatigue, missing the regular amount of sleep, and an excessive amount of excitement. There is a familiar joke about getting over a vacation on returning home. If health habits are forgotten during the vacation, it may be better for one to remain at home and do his regular work.

**The Hygiene of Travelling.** Frequently people do some travelling during their vacation. At such times their manner of living is changed, and they need to remember a few very important things about their personal health.

1. Avoid people who cough and sneeze and seem ill.
2. Be careful not to overeat.

3. Avoid hotels that do not seem clean.
4. Avoid using any common toilet supplies, such as combs, brushes, towels, and drinking-cups. Disease is carried by such things. Use individual toilet articles.



CHOOSE A SANITARY RESTAURANT WHEN YOU ARE ON YOUR VACATION

5. Avoid eating-places where the waiters, tables, and room seem unclean or where flies buzz about the food.

**A First-Aid Kit.** Since people are likely to do unusual things during a vacation, it is a good plan to take along a first-aid kit for any of the common vacation accidents that may occur. This is especially true if one is going camping or to some remote place where drug stores and doctors are not at hand.

Such a first-aid kit might well include the following:  
A bottle of alcoholic iodine to sterilize fishhook wounds and other wounds and cuts.

A package of gauze.

A package of bandages.

Some cathartic, such as castor oil or purgative pills.

**Be Careful of Water and Milk.** When spending a vacation one should always inquire into the purity of the water and milk supplies. This is especially desirable if one is camping or spending the vacation in the country. If there is a likelihood that the water is polluted, one should drink only water that has been boiled or treated chemically.

If there is any suspicion that the milk supply is not safe, the milk should be boiled.

**A Word to the Camper.** The camper should be careful to protect his own health. He should also recognize a moral obligation so to pitch, equip, and maintain his camp that it will not pollute the ground or water. The simplest way to dispose of wastes is to burn or bury them.

Insects sometimes add to the discomfort of campers. Filth attracts flies. A clean camp may be a flyless one; a dirty camp never can be. Fly paper and fly swatters help to drive flies off. Insects that cannot fly and that bite generally can be killed by sulphur ointments. Repellents, such as oil of citronella, help to drive off mosquitoes.

**Beware of Poison Ivy.** People who go camping often suffer from ivy poisoning. The ivy is a creeper, or climb-

ing plant, with broad leaves, sometimes slightly notched, arranged in clusters of three. Nearly everybody who touches these leaves is likely to be poisoned. The poisoning shows itself in severe inflammation and swelling of the skin. The pain, itching, and discomfort are severe.

One of the simplest and best remedies for ivy poisoning is a wash of boracic acid solution in water, followed by ordinary zinc ointment smeared on the inflamed skin. The skin should then be covered with a thin cloth. (The ointment should be removed daily with the wash, the inflamed skin dried, and the ointment applied again.)

### *Remember*

1. A carefully planned vacation is good for health.
2. Unless one considers his health, a vacation may be harmful.
3. With reasonable attention to health one may travel safely.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Plan your vacation for a good time with plenty of rest and recreation.
2. When travelling attend to the habits of cleanliness.
3. Sleep and eat in clean places only.
4. When gathering plants beware of poison ivy.

What other habits are necessary in travelling or on a vacation?



*Things to Do*

1. Plan a vacation. What health habits shall you need especially in travelling and on your vacation?
2. Plan a camping trip. What will you do to safeguard your health and the health of others?
3. Find a photograph of a poison-ivy plant. Let somebody draw a picture of the poison-ivy leaf on the blackboard.

*Review and Thought Questions*

1. What are the benefits to be gained from a vacation?
2. If one has the right kind of physical and mental habits, is it necessary to take a vacation?
3. What precautions for health should one take in travelling?
4. Why is a first-aid kit especially desirable for campers? What should a first-aid kit include?
5. How can water and milk be made safe?
6. Have your vacations helped to build up your health?

Explain.

*Also - stuff*  
 7 Why may one be in a worse condition than when one went for  
 8 Did more investigation should the camp recognize if a man some discomforts Build their cure  
 9 Did more investigation should the camp recognize if a man some discomforts Build their cure

## CHAPTER XVI

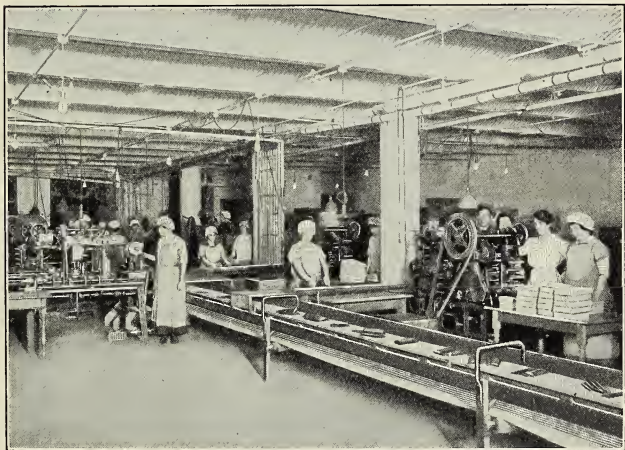
### HEALTH IN INDUSTRY

*broader  
working  
people  
made up  
the entire  
of muscles  
very low  
ages*

**A New Movement.** If men and women are to do their work well and live long and happily, they need healthful conditions under which to work. It is only within the last twenty years that thought has been given to the health of the worker. About twenty years ago investigations were made which showed that workmen were doing the day's tasks with little or no protection of health. They might be working at granite-cutting or wood-cutting and breathing in dust and dirt, or in sweat shops provided with little air or light. *sweating system* Often they became diseased because of filthy toilets. Labor unions demanded better conditions, and employers saw that it was an advantage both to the workers and to themselves to have healthful conditions in the shops. (The movement for industrial hygiene has led to the reconstruction of old buildings and the building of new factories that are models in lighting, ventilation, and toilet facilities.) Some industries even provide shower baths, gymnasiums, and playgrounds for their employees.

**Improving the Health of the Worker.** Since attention has been given to the health of the worker there has been a decrease of tuberculosis in industry.

3  
In certain occupations the danger from consumption, or tuberculosis of the lungs, is great. This is especially true in what is known as the dusty trades, although some dusts are more harmful than others. Workers in such



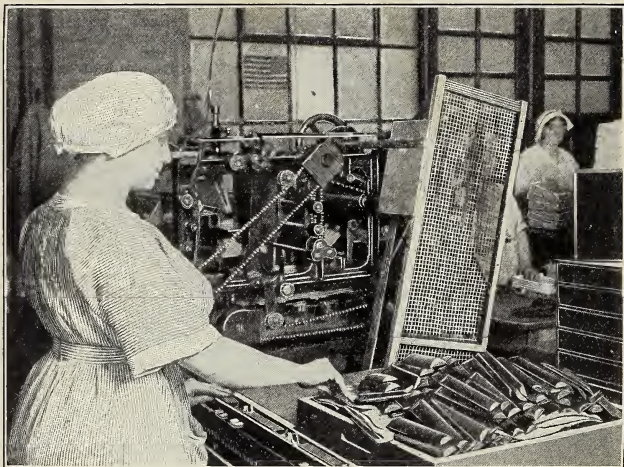
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#### A SANITARY FACTORY

7  
A clean, well-lighted, and properly ventilated factory helps to keep the worker in good health and insures a clean product

trades should wear something over the nose and mouth to keep the dust out. Many employers are required to provide also hoods and exhaust systems which suck the dust away from the room, and wet or oily applications for the surfaces worked in order to keep the dust down.

In certain of the trades the danger from soiled hands is even greater than it is from the air. Such places should have convenient and attractive facilities for thorough washing of the hands and face. In factories where



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#### SAFETY DEVICE ON A WRAPPING MACHINE

This screen protects the operator's hands from the belt and machinery

poisonous chemicals are used or made, it is against the rules for the employees to chew tobacco or gum or to smoke or to eat their lunches in the workroom, or to eat without first washing the hands and face well.

3A In the latter part of the World War we heard much of mustard gas. This gas not only irritated the lungs when

air containing it was inhaled, but poisoned the skin whenever and wherever it touched it. In many factories where these chemicals are made or used, irritations and inflammations of the skin are produced. In such factories the employees bathe and put on fresh working-clothes before they go to work, and after working they bathe again and put on their street clothes.

Much of the skin disease that is called eczema results from poisoning common to certain industries. Grocery itch is an eczema due usually to handling sugar and other goods. Baker's itch comes from constant contact with flour. (Housewives get eczema because they have their hands much of the time in water or soap and water.) Photographer's eczema comes from working with chemicals. Dentists get eczema from handling certain drugs. Those who work in places where cutting-oils are used are apt to get boils.

In many of the industries where machinery is used, there is great danger from accidents. These are due to the use of machinery with no safety devices and to the carelessness of the employees. The installing of proper machinery and the training of the men in methods of safety have reduced these accidents greatly.

**Medical Service in Industry.** It costs the employer a good deal to train each worker; consequently every absence because of illness and every death means a loss in money to him. Every absence is also a loss to the worker.

In the best-regulated industries there is a medical<sup>5</sup> service. It examines a man when he begins work to see that he is physically fit for the job he is to do, advises him how to keep well, and cares for his immediate needs in case of accident or illness.

### *Remember*

1. Good health means money and happiness for the worker.
2. The good health of the workmen helps to make the factory owners prosperous.
3. Good health in industry requires sanitary factories.
4. Workmen must have health habits to keep well.

What other facts do you remember from the reading of this chapter?

### *Things to Do*

1. Let your class appoint committees to visit several industrial establishments. Report on the sanitary conditions. In what way is the factory sanitary or insanitary? Is there a medical and nursing service? Do the machines have safety devices to prevent accident? Do the workmen have training in habits of health? Find out the most frequent cause of absence from work. What do you think could be done to decrease absence from this cause?

2. Find out whether there are any laws in your town, city, or province concerning the admission of children to industry.

3. Debate this question, Resolved, That no boy or girl should be permitted to work full time in any industry before the age of sixteen.



## Review and Thought Questions

1. What were the conditions in industries before the movement for industrial hygiene?
2. Name some unhealthful trades.
3. Which trades tend to cause consumption?  
*B name prevention*
4. Which trades cause skin troubles?  
*B How B name a prevention*
5. What is an industrial medical service?
6. What is being done by some factory owners to improve the health of the workers?
7. Why is a clean, sanitary factory a good advertisement?
8. Why should employers and employees work together to make work in factories safe for health?
9. How can health habits be learned in a factory?

## CHAPTER XVII

### WORKING FOR SAFETY

**Alert Boys and Girls.** This is a dangerous world for boys and girls to live in unless they have their eyes and ears open. Automobiles are increasing so rapidly that it is now as dangerous to cross the street as it is to cross a railroad track—often more dangerous. There are at least two very important reasons why accidents happen: first, automobile drivers are careless; secondly, people who walk on the street are careless. Many boys and girls throughout the land are doing their bit for the safety of themselves and their community.

**Safety Work by School Children.** Many cities have done much for safety. The children themselves are doing much to prevent accidents.

In many of the schoolrooms there is a committee on safety. It is the duty of this committee to inspire everybody in the room to be careful and so avoid accidents. Every week this safety committee makes a report to the room. The members report on the accidents and fires they have heard or read about, especially those in their own communities. They report on the health of the city also and give suggestions about the correction of prac-

tices which they have seen among children. Any pupil in the room may add to the report.

5 This committee also has an honor roll. Awards are made once a week for those who have done something



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#### A LESSON ON SAFETY

This is a policeman giving the children a talk on safety. The children like the pictures he draws

especially worth while for safety. Here are some of the ways in which a pupil may get his name on the honor roll :

1. By presenting to the room the best kind of safety rule. The best rule is decided by a vote of the class.
2. By writing the best promise on safety; for example, "I promise not to skate on thin ice."

3. By making the best drawing or showing a picture of himself teaching a lesson on safety.

4. By bringing to class the best clipping on carefulness.



AT CERTAIN HOURS THERE IS NO TRAFFIC ALLOWED ON THIS STREET.  
IT IS KEPT SAFE FOR PLAY

5. By teaching the room through pantomime the best safety lesson ; for example, how to board a street car, the danger of banana peels, etc.

6. By preparing and giving the best four-minute speech on the prevention of accidents.

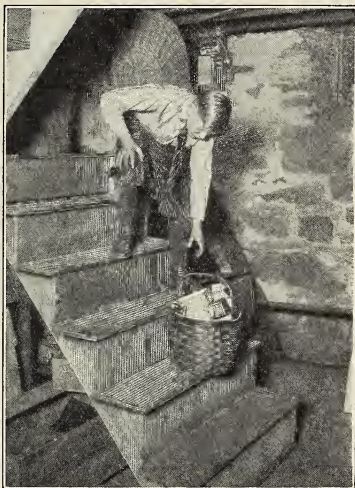
7. By passing the best examination for the month on

some questions like these: What would you do on discovering a fallen wire? What may the automobilist reasonably expect of the pedestrian? Name five ways by which you can distinguish a careful person. Give one important precaution about the use of firearms. Name eight or ten safety devices with which you are acquainted for the protection of human life.

Every safety committee has a further duty. It must know the location and use of the chemical fire extinguishers in the building and of the safety material, how to give the fire alarm in case of a fire in the school building,

and just what to do in case there is an accident.

**Common Causes of Accidents.** To help the children give their weekly reports on accident prevention every pupil in one school is provided with a list of these common sources of accident and sickness:



A GOOD SCOUT

"Many serious accidents happen because things are left carelessly on the stairs.  
I will put this basket in a safe place"

1. A carelessly thrown match.
2. A broken window.
3. A projecting nail.
4. An unclean can or bottle.
5. Alighting from a car in the wrong manner.
6. Careless roller-skating.
7. Reaching out of a window.
8. Trying to recover objects from deep water.
9. Catching on cars and wagons.
10. Playing tag in the street.
11. Jumping on or off moving cars.
12. Careless throwing.
13. Handling discarded cigarette stubs.
14. Tripping or removing a chair from under a person.
15. Holding an umbrella over the face in crossing a street.
16. Skating on thin ice.
17. Neglect of a wound or scratch.
18. Handling fallen wires.
19. Sucking a dirty finger.
20. Chewing the corner of a handkerchief.
21. Holding money in the teeth.
22. Eating candy or fruit which has been exposed in insanitary places.
23. Leaving matches where rats or mice can get them.
24. Throwing a banana peel on the street or sidewalk.
25. Standing on a rocking chair.



26. Sitting in a draught.
27. Sleeping without ventilation.
28. Carrying a pen or pencil with the point exposed.
29. Running through a building.
30. Crossing a street in the middle of the block.
31. Standing in a street waiting for a car.
32. Holes in the sidewalk.
33. Unsafe furnace pipes.
34. Accumulation of rubbish in a basement.

**Safety depends on Safety Habits.** There is now a good deal of evidence to show that if people are careful most accidents can be prevented. It has become quite the fashion to have in many communities what is known as safety week. During that week the newspapers print much about safety. Street cars carry special posters to remind the public. Teachers and pupils are asked to help reduce accidents during the week. These campaigns for safety are usually successful.

Unfortunately after a safety week many people are inclined to forget and go back to their old careless habits. The only way to gain safety is not to stop with a safety week. A safety campaign is needed throughout the year.

It is dangerous to forget.

Both those who walk (the pedestrians) and those who drive need to form safety habits. Drivers of automobiles are responsible for more accidents than pedestrians. Sometimes people who drive automobiles are not fitted

to assume such responsibility because of some physical defect. More and more cities and provinces are requiring better qualifications from those who drive. Make a list of safety habits for the driver of an automobile and also for the pedestrian.

### *Remember*

1. It pays to look out for your own safety.
2. A good citizen works for the safety of others.
3. The streets are often as dangerous as a railroad track.
4. Boys and girls and grown-up citizens can make their community a safer place.

Write out a list of other things about safety worth remembering.

### *Safety Habits*

1. Look in both directions before you cross the street.
2. Avoid getting off a moving car or vehicle.
3. Avoid catching on cars and wagons.
4. Always pick up broken glass and do what you can to make projecting nails less dangerous.

Name other habits that make for safety.

### *Things to Do*

1. Find out what the traffic rules are in your community.
2. Discuss the special dangers in your community.
3. Organize a safety-first club.
4. Think up a plan to protect the little children as they cross the street.

5. Have an honor roll in your room.
6. Put newspaper clippings about accidents on a bulletin board.
7. Add to the list of common accidents found on page 124.



SPLENDID CITIZENS

"Let us fix this cellar door so nobody will be hurt"

8. Prepare a two-minute talk on safety.
9. Report accidents that your friends have told you about.
10. Have a column headed "Accident Report" on your bulletin board. For how many days, weeks, or months will it show no record of an accident's happening to anybody in the room?

**11. Write safety slogans and jingles such as these:**

When Mr. Careful comes to play, Mr. Careless runs away.

Take an ax to accident.

Preach safety first and practise what you preach.

A man at work is worth two in a hospital.

Jack be nimble,

Jack be quick,

But don't run around with a pointed stick.

If it's trouble you want to hatch,

Look for gas with a lighted match.

Little Jack Horner

Stood at the corner

Watching the traffic go by;

But when it had passed,

He crossed over at last

And said, "What a good boy am I!"

**12. Write a play on safety first.****13. Make posters on safety.****14. Compose some safety songs.****15. Have a debate on safety. Use subjects like these :**

*a.* Children should be allowed to play in the streets.

*b.* People should cross the street only at street corners.

*c.* All vehicles should come to a stop before crossing car tracks.

*d.* Large street signs should be prohibited.

**16. Have a safety parade.****17. Plan a special safety week.**

**18. Invite somebody in your police department to speak to your school on safety.**

*Review and Thought Questions*

1. What accidents may occur at home? at school? on the street?
2. How may children look out for their safety? for the safety of others?
3. What proof have we that most accidents are due to carelessness?
4. What is your city, town, or province doing for safety?
5. Which of the safety habits mentioned in this chapter do you think you ought to be more careful about?
6. What are some of the common causes of fires?
7. Do you know how to turn in a fire alarm? Explain.
8. Just what would you do if your house caught on fire?

## CHAPTER XVIII

### WHAT TO DO IN AN EMERGENCY

**Be Prepared.** Lucine Cuny was a sixteen-year-old student attending a high school in one of the larger cities. One day when she was diving off a springboard into the river she noticed that one of her companions was being carried downstream by the current. As she watched she saw him sink twice. He had struck his head against the bottom and had become dazed. He was nearly as large as she, but Lucine swam out to him promptly. After a desperate struggle she succeeded in dragging him in. On shore he was revived by his companions.

It was a brave act; but something more than bravery is needed at the time of an emergency. Knowledge and skill are required. Lucine Cuny was prepared for service, having earned a Junior Red Cross Life-Saving emblem.

**Artificial Respiration.** It is not often that one is called upon to restore respiration by artificial means, but sometimes it is necessary to save a person from drowning or from gas or automobile asphyxiation or from electric shock. If you are prepared to act you may be able to save someone's life.



*of artificial Respiration* 4  
The method now commonly used is the Prone Pressure Method. These are the directions furnished by the Red Cross:

When a drowned person is brought ashore, don't wait for anything. If possible, send for a physician. But get to work, at once, with your own hands.

Lay the patient on his stomach. Extend one arm directly over the head. Bend the other arm at elbow, and rest patient's cheek on hand, to keep the nose and mouth off the ground and free for breathing.

Kneel, facing forward, and straddling patient's legs just forward of knees. Place palms of hands on each side of back, just above belt line, with your thumb alongside the fingers, the middle finger just touching the lowest rib, and the tips of fingers just out of sight. (Upper picture on page 133.) With arms held

straight, lean gradually forward, pressing forward, down, and in on patient's back and counting slowly: one, two, three. Snap your hands sideways, off patient's back. Swing your body back counting slowly: four, five. (Lower picture on page 133.) Rest. Straighten arms, and repeat pressure.

Three movements: straight arm pressure, quick release,



LUCINE CUNY

Because of good training she was able to save a boy's life

swing back. Repeat these regularly at about five-second intervals, twelve times a minute. If you don't hear air drawn in when you snap off your hands, feel in the patient's mouth for obstructions such as a wad of tobacco. And unless a physician takes charge, keep up work steadily till breathing begins, and continues naturally. Then remove patient, on a stretcher and well covered, to a hospital or to his home. *B-12*

Don't get discouraged. Stick to it, for three, even four hours if necessary.

In addition to the directions given above, experts in life-saving recommend <sup>*B-13*</sup> that while one person is working for artificial respiration, another person apply warm bricks or bottles, dry the body as much as possible, and wrap the legs and lower part of the trunk with blankets.

**Treatment for Common Poisons.** People are often poisoned because they do not examine bottles before taking medicines from them. Every medicine bottle in the home or school should be labelled correctly and plainly. Bottles containing poison should have a special kind of mark to show that they are poison.

If some member of the family takes poison by mistake, remember to do these things:

1. Send for the doctor immediately. Tell him what the patient has taken.
2. If you know what the poison was and the antidote <sup>*? immediate*</sup> is given on the bottle, follow the directions given. *poison*
3. If you do not know what the poison was, try to produce vomiting. Running the finger down the throat



HOW TO SAVE LIFE BY RESTORING RESPIRATION

or drinking a large quantity of warm water will usually cause vomiting. Mustard and salt, a teaspoonful of either in a glass of lukewarm water, are also good emetics.

4. If the patient is drowsy, it is probable that he has taken opium. Keep him awake until the doctor arrives.

Fainting. In case of fainting let the subject lie flat. Do not raise the head. Loosen the clothing, especially around the neck. Give plenty of fresh air. Fanning is a help. A whiff of ammonia will bring back consciousness, but it is well to be in no hurry about restoring consciousness. Rub the limbs toward the body. Do not let the patient get up until he has recovered.

Overcome by Heat. In the very hot days of summer, people are sometimes overcome by the heat. If the person has fever, apply an ice cap to the top of the head. If the fever is 102 or over, put him in a cold bath and keep ice on the head. Judge the fever by taking the temperature. If no thermometer is at hand, judge it by the flushed face and the heat of the skin over the chest or the abdomen.

For heat prostration without fever apply cold to the head, but warmth to the remainder of the body.

To stop Nosebleed. Lean the head forward and shut off the nostrils with the forefinger and thumb. Hold the head in this position until the nose has filled with blood and the blood has clotted. Apply cold to the face or neck, or both, by means of an ice bag or cold cloths or ice.

**Convulsions.** Put ice or cold cloths on the head. Bathe the body and limbs in hot water. Put warm bags or bricks at the feet. Keep the person quiet and free from excitement.

**Shock.** Every serious injury is followed by what is known as shock. The ends of the nerves receive the blow and carry the message to the brain.

If you hit your finger with a hammer, you may feel sick for a moment. You feel weak, a clammy sweat breaks out on you, and you scarcely know what is going on around you. This is shock. Severely shocked people may be unconscious.

The best remedy for shock is heat. Apply it by means of hot-water bottles, hot bricks, hot blankets, or in any other convenient way. Apply it to the feet, legs, or back, or to all three.

**To ease Spasmodic Pains.** Take some preparation of benzyl benzoate. This is also of service in relieving irritating coughs. There are many of these preparations on the market. It is never safe to give opium, morphine, or any preparation containing any of these except under a doctor's direction, and not then unless the physician insists. So great is the harm done by morphine and opium that the evil they do outweighs the good, and the world would be better off if less of these drugs were produced.

**To quiet Local Pain and Cramps.** Apply a hot-water bag over the area of pain.



**Ordinary Cuts and Wounds.** The skin is a natural protection to the body. Any scratch or cut may be dangerous or even fatal if it is not properly cared for. Paint



( TREATING A BURN WITH MELTED  
PARAFFINE

This keeps air away from the burn and relieves the pain. Moistened baking soda or vaseline serves the same purpose )

the wound with iodine and apply a clean bandage. One cannot be too careful to keep the wound and dressing clean.

**Burns.** The aim in the first treatment of burns should be to exclude the air. The picture on this page shows how that may be done.

**Bruises.** Often one falls or is struck without the skin's being broken, but the tissue underneath the skin is injured. Some of the tiny blood vessels are

broken. The ordinary black and blue spot results. If the bruise is slight no treatment is necessary. If there is pain apply at once very cold or very hot cloths. Ice may be applied directly to the injured part.



**Dangers from Carbon Monoxide Poisoning.** Natural gas or manufactured gas is of great value today in cooking our food and heating our houses. At the same time, unless it is used properly it is very dangerous. When the gas is not burned properly, a deadly poison known as carbon monoxide is given off in the air. It is not easily detected because it is odorless, colorless, and tasteless. Carbon monoxide combines readily with the hæmoglobin of the blood and destroys its power to carry oxygen. It is this substance that is dangerous in ordinary illuminating gas, also in the "smoke" from automobiles.

This poisonous gas is especially likely to be formed

1. By pipeless heating stoves. The pipeless heating stoves are rather more dangerous than are the pipeless cook stoves.
2. During the first few minutes' operation of any hot-water heater.
3. When any flame is not supplied with enough air.
4. By coal stoves or furnaces that are not tight.
5. In exhaust gases from automobiles.

One overcome by monoxide poisoning should be treated by artificial respiration.

#### *Remember*

1. It pays to be prepared.
2. When an emergency occurs, keep cool and remember your training.

What other things do you remember?

*Health Habits*

1. Avoid danger.
  2. Look at the label before taking medicine.
  3. Send for the doctor when something serious happens.
- Name other health habits.

*Things to Do*

1. Demonstrate artificial respiration.
2. Write to the Royal Life Saving Society for more detailed information on life saving. Report to the class on other details of life saving not found in this chapter.
3. Look over all the bottles in your medicine closet at home to see whether each bottle has a label.
4. Demonstrate other forms of first aid mentioned in this chapter.
5. Report on other ways of meeting emergencies not mentioned in this chapter. Read some books on first aid and emergencies.
6. Write to the *Red Cross Junior*, Toronto, Ontario, for some sample copies of this publication. Report on service rendered through first aid.

*Review and Thought Questions*

1. Why was Lucine Cuny able to save life?
2. Under what conditions is artificial respiration necessary? Report cases about which you know.
3. What is an antidote?
4. What emergencies are treated in this chapter? What is the best way to meet each one?
5. Why is carbon monoxide very dangerous? What precautions should be taken against it?

What is an antidote and where do I find it? Name two uses of benzene with benzene  
 as a remedy for high temperature, 10. What is the treatment  
 for ordinary cold and wounds, 10. What is the treatment  
 for burns (B) bruises

## CHAPTER XIX

### ALCOHOL AND TOBACCO — DANGER !

**Alcohol an Enemy to Health and Success.** In the early history of Canada the drinking of alcoholic liquors like hard cider, beer, whisky, brandy, and wine was common. It was thought to be helpful for both body and mind.

Gradually as people learned more and more about the effects of drinking they realized how injurious it was. The belief became widespread that it was harmful to the individual citizen and detrimental to the public good. In many cities, towns, and counties of Canada it became illegal to sell alcoholic drinks.

During the World War every one of the principal nations involved discouraged the use of alcohol because the making of alcoholic liquors required large quantities of grain that could be used for food, and also because alcohol made the soldier unfit to fight. The mine operators declared that one reason why they could not produce more coal was that the workers used drinks which contained alcohol. At last many of the provinces outlawed alcohol. An amendment to the Constitution of the United States made it unlawful to manufacture or to sell it in that country.

Nobody who has examined the facts about alcohol would say honestly that alcohol is a friend to human beings. It is not only harmful physically and mentally but it is also a habit-forming drug. Many who begin to use it find themselves utterly in its power.



**SIR JOHN FRENCH**  
 Commander-in-Chief  
 of the  
 Expeditionary Forces,  
 says

**ABSTINENCE**  
 and Self Control, make a Man more  
**SERVICEABLE**

**Sir FREDERICK TREVES** (Surgeon to the King)  
SAYS  
 "If you want to be Efficient,  
**DON'T TOUCH ALCOHOL**"

ONE OF THE ENGLISH WAR POSTERS

It appeals to the patriotic to abstain  
 from drinking alcohol

A Dialogue between  
 Science and John Barleycorn. Alcohol is often referred to as John Barleycorn. The most thorough knowledge of facts is called Science. Let us suppose that these two old-time enemies meet and have a discussion. John Barleycorn will lead; Science will reply.

**JOHN BARLEYCORN.** Science, you do me much harm by telling about the

sorrow I bring to the world. People drink me and laugh.

**SCIENCE.** Quite so; but you cause more grief in the world than laughter. Think of those who laugh, but wake up with empty pockets.

**JOHN BARLEYCORN.** It costs little to drink.

**SCIENCE.** You must know that one of the chief causes of

poverty in the world is drink. The man who spends his money for liquor has less to put into the savings bank and less to spend on his home and family. For an investment I prefer the savings bank to the alcoholic drink.

JOHN BARLEYCORN. Speaking of an investment, do you not know that alcohol is a food?

SCIENCE. There is no general agreement on that point. Even those who believe it to be a food can claim nothing for it except fuel value. It may supply a small amount of heat and energy, but unlike milk it cannot build up the body. Milk is a real food. It supplies heat and energy and in addition makes bone, muscle, and blood without any harmful effects. Alcohol is a poisonous drug and is injurious to the body. Even Dr. Atwater, who showed that alcohol in very small quantities might take the place of food, condemned its use as a food because of its expense and possible ill effects on the nervous system.

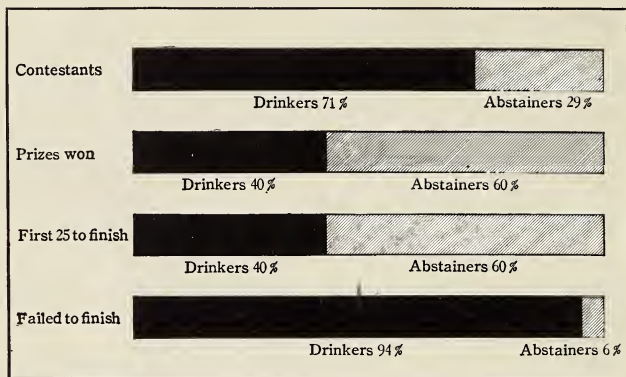
JOHN BARLEYCORN. Alcohol is said to make one much more alert in the handling of his muscles.

SCIENCE. This is untrue. You know of the test by Dr. Walter Miles. He made a pursuit pendulum. This was a swinging pendulum which contained a leaky reservoir of water. This leaky pendulum was made to swing above a sink. The game was to catch with a cup as much of the water as possible by following the stream back and forth. Dr. Miles discovered that when one tried to do this both before and after drinking alcohol, he always caught less after drinking alcohol. There are many other tests that show how alcohol decreases the precision and steadiness of movement.

JOHN BARLEYCORN. Many persons who drink alcoholic liquors think that it helps them to control their minds.

SCIENCE. You are a great deceiver. Who ever heard of your

helping anybody to drive an automobile better? This requires alertness of both mind and body. Any city or town will tell you that you are one of the commonest causes of automobile accidents. In the factories it has been found that workmen



THE STORY OF A WALKING MATCH

It was open to all German athletes. Eighty-three took part in this sixty-two-mile walk. No alcohol was used on the march. The first four to finish were abstainers. Tell more of the story by studying the diagrams above

who are sober have fewer accidents than those who drink. Alcohol dulls our senses and our alertness in perceiving danger. It causes unsteadiness of hand and foot.

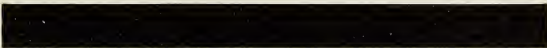
**JOHN BARLEYCORN.** You forget I am used as a medicine.

**SCIENCE.** You may be helpful sometimes, but only when a physician advises. You are now known as a narcotic, something that deadens the nervous system, not a stimulant. Every hospital is using less alcohol every year.


**JOHN BARLEYCORN.** Strong liquor prevents disease.



SCIENCE. There is no proof for that. Consider pneumonia. Dr. Osler and Dr. McCrae found that only 18.5 per cent of total abstainers who got pneumonia died, but 25 per cent of the moderate drinkers and 52.8 per cent of the heavy drinkers died.



At the age of 30 a drinker may expect to live 35 years longer



At the age of 30 an abstainer may expect to live 38.8 years longer

INSURANCE RECORDS SHOW THAT IF A MAN DOES NOT DRINK HE  
MAY EXPECT TO LIVE LONGER

JOHN BARLEYCORN. Do I not help in making people healthy? in lengthening life?

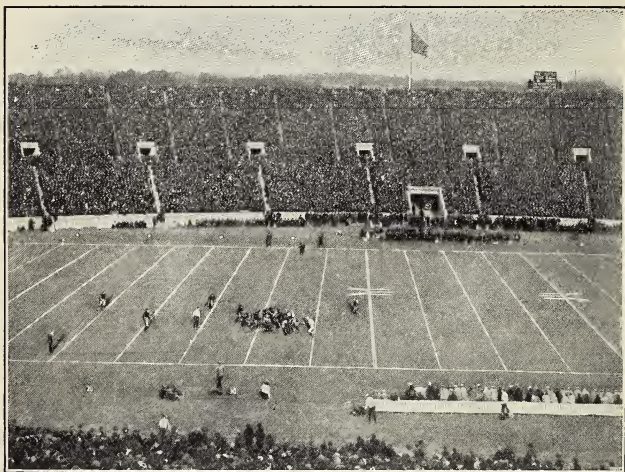
SCIENCE. Again there is no proof of that. Fortunately we have a good many facts that show how deadly is the effect of alcohol on the human body.

For sixty years the United Kingdom Temperance and General Provident Institution has had a separate section for abstainers. Its books show that drink shortens life considerably. At 30 years of age the average insured drinker may expect to live 35 years longer, whereas the average insured abstainer may expect to live 38.8 years. At 40 years of age the average insured drinker has 27.3 years of life before him, whereas the abstainer has 30.3 years. The advantage in favor of the abstainer is 11 per cent.

JOHN BARLEYCORN. I fear you know too many facts, Science, for me to argue with you. There is just one thing that I am afraid of.

SCIENCE. What is that?

JOHN BARLEYCORN. I am afraid of the education of the young. If they can be kept in ignorance of all the facts—that I do not help them to get or keep a job, do not make them strong, do not help them on the athletic field—perhaps they will learn to like me. Then they will be in my power.



#### ATHLETES MUST HAVE GOOD HABITS

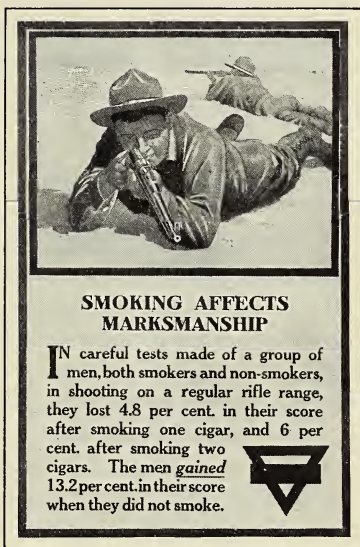
Football players do not use alcohol or tobacco when they are in training.  
Both of these are a handicap in every form of athletics

SCIENCE. For once you are speaking the truth, John Barleycorn. You may well fear education. As our boys and girls find out that you are a poison and an enemy of mankind they will leave you alone. Knowledge will always be your enemy, for the facts prove that good health habits make happy boys and girls and fine men and women.

**Tobacco an Enemy of Youth.** There is no scientific evidence to show that the body needs tobacco or that tobacco is at all conducive to health. Those who have made a very thorough study of the effects of the use of tobacco on the mind and body are all agreed that while in adult life the moderate use of tobacco may not result in serious harm, tobacco is always likely to prove injurious to children and young people.

Here are some of the principal reasons why smoking is bad for young people:

1. Smoking tends to stunt growth.
2. Tobacco smoke is always an irritant to the mouth, throat, and lungs.
3. Tobacco is harmful for athletes.
4. The use of tobacco often leads to a disregard for ordinary politeness. Smokers sometimes use tobacco in the presence of those who find tobacco smoke very offensive.



THIS POSTER SHOWS ONE OF THE BAD EFFECTS OF SMOKING

5. The use of tobacco in any form is expensive.
6. The habit is a luxury, since it is quite unnecessary.
7. When the tobacco habit is once formed, it is hard to break. The smoker is likely to become its servant and slave.

### *Remember*

1. Alcohol is a poison and a habit-forming drug.
  2. It is a narcotic, not a stimulant, and dulls the action of the brain.
  3. Alcohol interferes with self-control.
  4. It is responsible for many accidents.
  5. Alcohol is a cause of poverty.
  6. There is no evidence to show that alcohol ever helps youth to be successful.
  7. Tobacco contains a poison called nicotine.
  8. Good athletic teams refrain from using tobacco.
  9. The use of tobacco is a waste of money.
- What other important facts do you remember?

### *Health Habits*

1. Leave alcohol and tobacco strictly alone.
2. Avoid all drug habits.

### *Things to Do*

1. Write to some great athletes in your province to find out whether they recommend the use of alcohol and tobacco for those who wish to excel in athletics.

2. Write to several large business establishments, including a railroad, to find out whether they prefer the abstainer to the drinker.

3. Appoint a committee to interview several physicians in your community on the effects of alcohol on the human body.

4. Write a dialogue between Science and John Barleycorn. Use some facts not given in this chapter.

### Review and Thought Questions

1. Why was the use of alcohol discouraged during the World War?

## 2. What is the danger in a habit-forming drug?

3. What were the points made by Science in arguing with John Barleycorn?

4. Does the use of alcohol result in real happiness? Explain.

5. How would you prove that the drinking of alcohol means the loss of money?

6. Would you trust the skill of a chauffeur who drank habitually? Give reasons for your answer.

7. What is the difference between alcohol and milk as foods?

8. What do experiments like that of the pursuit pendulum show?

9. What is the average length of life of the abstainer compared with that of the drinker, according to the life-insurance companies.

**10. What are the arguments against tobacco?**

3 B Explains some barley

what is a record of

" " " stimulation

17

when drinkers take pneumonia

## CHAPTER XX

### PATENT MEDICINES

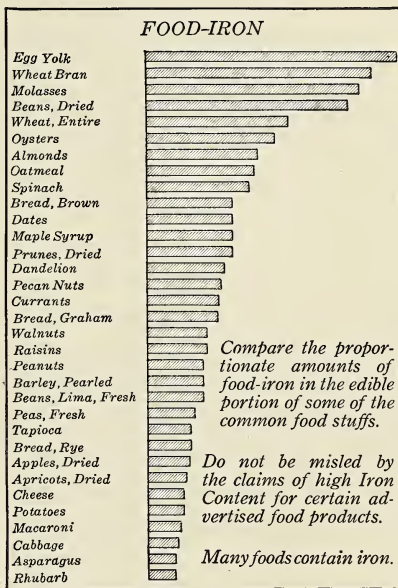
**Canadian Laws on Patent Medicine.** Since the authorities try to protect the people of Canada against unsafe water, milk, meat, and other foods and against the spread of disease, we might expect that they would also provide for pure and safe drugs. Before such protection was given, it was possible for dishonest manufacturers to put on the market drug preparations that were positively injurious.

In 1908 the Proprietary or Patent Medicine Act was passed. Later, in 1919 changes were made in this law. The Canadian laws concerning patent medicines now require that every kind of medicine, whether used for internal or external purposes, must be registered and a license must be obtained annually. The use of opium is forbidden in all internal remedies. The proportions of drugs used in every full dose must be reported to the government. None of these preparations are to be represented as "cures." Misleading and exaggerated advertisements are also prohibited.

**Why Patent Medicines were so Harmful in the Past.** Until within a few years these so-called patent medicines



contained harmful, habit-forming drugs and excessive amounts of alcohol. In some places where alcoholic drinks could not be sold patent medicines were sold and used as alcoholic beverages. Strict laws concerning alcohol now make this almost impossible. Many patent medicines also contained opium, morphine, or cocaine, unknown to the users. Sometimes people formed the dangerous habit of using these drugs by taking patent medicines. The laws today prohibit the use of some harmful drugs in medicines, make the use of others unpractical, and compel others to be advertised on the label when used in patent medicines.



GET YOUR IRON IN FOODS INSTEAD OF  
IN PATENT MEDICINES

Many So-called Patent Medicines are Frauds. To invest in patent medicines is largely a waste of money,

for their merits are always greatly exaggerated. The law prevents the making of fraudulent statements about a medicine on the label of the bottle or box, but does not prevent such statements from being made elsewhere.

There are some "patent medicines" that claim (outside the label) to cure almost everything, and many of them claim to cure incurable diseases. Cancer and tuberculosis are two of the worst enemies of mankind. The most skillful physicians who have spent their lives in dealing with these diseases have discovered no drug that will bring about a cure, yet patent medicines have claimed to do so. Cases have been known where men's testimonials about the cure of the disease and their death from that disease have been published in the same paper. One of the most-advertised remedies is hair restorer. The most exaggerated claims are put forth, with pictures to illustrate the appearance of the head before and after using the patent medicine. These claims are fraudulent. One of the greatest frauds is connected with facial remedies. One advertises to produce a new skin in forty minutes; wrinkles, freckles, moles, and other facial blemishes will be removed easily. An analysis of this preparation by a medical association showed that it was composed of water, clay, and ordinary perfume. Such preparations are sold for from \$2 to \$10 a pound. One could buy the powdered clay and perfume and mix them with water for about twenty cents.

**The Drug Habit.** Not only are most patent medicines either harmful or useless, but they may lead to the bad habit of taking drugs. The medicine-taking habit causes much ill health.

Most simple ailments for which medicines are taken are due to faulty health habits. What should be done is to change the habit, and so get rid of the ailment. To take medicine for it without changing the habit may give some relief for a short time, but finally leads to more trouble.

Some of these medicines may do harm. For example, sour stomach comes from some bad habit. If, instead of correcting the habit, one takes soda for relief, he makes conditions worse. The alkali soda makes the stomach secrete more acid, and this brings on more acid stomach. While most headache remedies relieve headache, frequent use of them changes the blood in such a way that the headaches become more persistent. The repeated use of laxatives establishes the constipation habit, making it more and more difficult to overcome this ailment by following rules of healthful living.

It should be remembered that symptoms like sour stomach and headache are merely signposts. They are put there to tell us of conditions and warn us of danger. To take a drug for the relief of a symptom and not change the habit which causes the symptom is like painting out the warning on a signpost, for one is likely to think that the danger has been escaped.

**Health Habits better than Drugs.** Our very best friends are health habits. A good complexion is found in habits of cleanliness, eating, drinking plenty of water, elimination, and sleep. It is not found in rouge and toilet preparations. Health habits point the way to beauty and power. If our health habits are right and we still have trouble, the best thing to do is to consult a physician.

### *Remember*

1. Many so-called patent medicines are fraudulent.
2. Patent medicines are usually either useless or harmful.
3. Taking patent medicines often results in the drug habit.
4. Health habits are far better and cheaper than patent medicines.

What other things do you remember from the reading of this chapter?

### *Health Habits*

1. Avoid taking patent medicines.
2. Avoid the habitual use of medicine; instead, prevent symptoms by good physical and mental habits.

### *Things to Do*

1. Appoint a committee to write to the Canadian Medical Association, Toronto, for some information on patent medicines.
2. Appoint another committee to write to your provincial department of health and to the Department of Pensions and National Health at Ottawa for additional printed matter.

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3. Compare the claims on the label for some medicine with those on billboards and in papers.

4. Prepare and deliver a five-minute talk entitled "The folly of forming the habit of taking so-called patent medicine and other medicine."

5. Study the diagram on page 149. Plan a meal which will be rich in iron.

### *Review and Thought Questions*

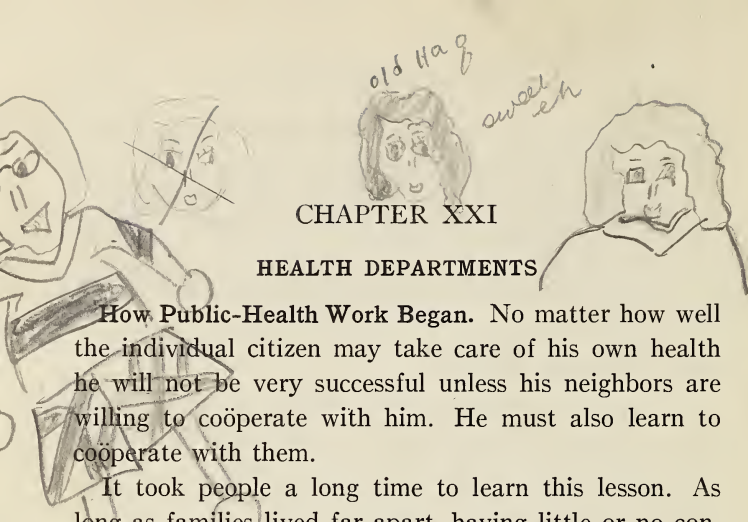
1. Why do the manufacturers of so-called patent medicines prefer to register the name of the medicine rather than to patent the medicine itself?

2. Do reputable physicians and health experts engage in the manufacture of such medicines?

3. What has been the effect of recent laws relating to patent medicines?

4. Why should one change his habits so as to prevent symptoms rather than habitually take drugs to relieve them?

5. What is meant by the drug habit? Why is it a bad habit?



old Hag  
sweet eh

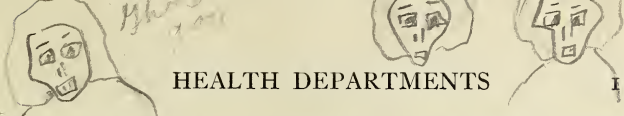
## CHAPTER XXI

### HEALTH DEPARTMENTS

**How Public-Health Work Began.** No matter how well the individual citizen may take care of his own health he will not be very successful unless his neighbors are willing to coöperate with him. He must also learn to coöperate with them.

It took people a long time to learn this lesson. As long as families lived far apart, having little or no contact because they were self-supporting, they were no menace to each other. Streams did not become seriously polluted with filth. When practically every man had his own cow there was little chance for the health of the community to be threatened by an infected milk supply. In the early days of the pioneers, before the growth of towns and large cities, communicable diseases were not transferred as frequently from one to the other as they might be today. As people began to develop communities, the problems of milk, food, water, disease, housing, and safety began to loom large. They were problems which no single citizen could solve alone. This meant that laws had to be passed and officers appointed or elected to look after the public health. Although public-health problems were recognized quite





early in the history of Canada, public-health departments in our provincial governments were rather slow in developing.

Before the establishment of health departments we find all the provinces passing laws conducive to better public health. In the Province of Quebec we find that as far back as 1667 there were meetings to consider the quality and weight of bread. In 1707 regulations were passed concerning the inspection of meat, and laws were passed relating to child welfare and to the cleanliness of streets and houses. Little by little local communities and the provinces established departments of public health. In 1919 a law was passed creating the Dominion Department of Public Health, which has done much for the health of Canada. At the same time there was organized the Dominion Council of Health. This provides for a meeting of provincial and Dominion health officers twice a year. At these meetings health officials have a chance to talk over their common problems. It is only by such a spirit of coöperation that disease has been steadily conquered and good health won.

**What Local Departments of Health Do.** Our largest and best local departments of health have some or all of the activities listed below:

1. *They prevent the spread of communicable disease.* This is made possible by the early detection of disease. Physicians are required to report at once all cases of cer-

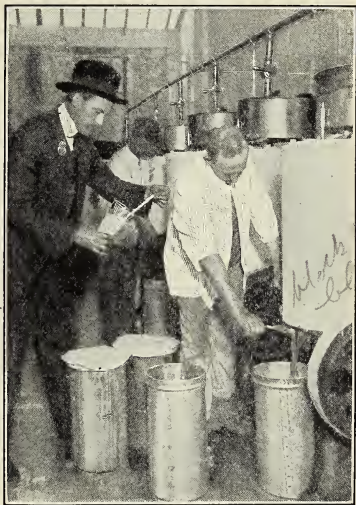
tain diseases. If the case is one of the serious diseases like smallpox, scarlet fever, or diphtheria, this may result in the prompt isolation of the patient and a quarantine of the premises. This will prevent the patient from mingling with others until it is safe for him to do so. It may also prevent the other members of a household from going to church or school until danger of their coming down with the disease is past.

2. *They collect statistics.* To safeguard the health of a community a health department and the general public need to know facts concerning the health of the people. Usually a record is kept of births, deaths, and illnesses.

3. *They provide laboratories.* A laboratory is a place where scientific tests and experiments are made. These are very serviceable in the detection and prevention of disease. For example, a citizen may have a sore throat. The physician cannot tell by examination whether it is diphtheria or not. He may take what is called a culture. To do this he touches the throat with a bit of sterile cotton fastened to a stick. This is put at once in a tight bottle and sent to the laboratory. There it is put into some kind of gelatin, which is kept for a number of hours in a warm place. Little colonies of bacteria then begin to form. A microscopic examination may show that the disease is diphtheria. If it is, later cultures from the throat will show whether the person has recovered so that he cannot carry the disease.

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4. *They inspect food supplies.* This means the examination of foods, such as milk, to determine whether they contain enough fat and are free from harmful bacteria. Markets and restaurants also may be examined. In some cities all those who handle food for public consumption must have a physical examination to prove that they have no contagious disease. To maintain a pure water supply is usually the duty of the local department of health.

5. *They educate the public.* Many health departments bring out reports and bulletins to enlighten the public. The reports tell about the work of the board and the problems of the community. Many of the bulletins are very valuable, because they give advice on a great many topics such as food, exercise, recreation, the care of babies, and health in the home.



© Keystone View Co.

## AN INSPECTOR AT WORK

This man is inspecting the milk in an ice-cream factory

**Provincial Departments of Health.** These departments have many duties similar to those of local departments. They may by law require certain duties of local departments. They always stand ready to advise such departments when these call upon them. Often a provincial department, with its better equipment and superior force of assistants, may investigate local conditions and assist local health officers.

**The National Government and Health.** Our national government does much for the health of its people. For instance, food of all kinds is examined to see that it does not contain anything which might be harmful to our health. Every immigrant who wishes to land on our shores must first of all pass a physical examination. Those who have trachoma—a very bad disease of the eyes—or other serious defects are not admitted. The government also controls the amount of habit-forming drugs like opium and morphine that may be imported.

**Public-Health Nurses.** One of the greatest messengers of good health in Canada is the public-health nurse. These are employed by various organizations: by departments of health, schools, industrial organizations, and insurance companies. They often give lectures, set up exhibits, and start community health campaigns. One of their duties is bedside nursing. Often they travel over their territory calling upon the sick, rendering first aid, and educating members of the family in matters of health.

**The Lady of the Lamp.** The woman who did more than any other person to further the work of nursing was Florence Nightingale, whose life was consecrated to service. The story of her life is truly inspiring.

As a girl, Florence Nightingale had everything that most girls want to make her happy. She had plenty of money, good looks, quick wit, talent in music and in writing, and a whole host of friends. She travelled in foreign lands and was introduced at court. And yet she was not satisfied. She wanted to be a nurse, but that was the one wish that her parents would not gratify.

At last, when Miss Nightingale reached the age of thirty-one, her parents, in despair because she did not marry, gave their consent for her to enter a hospital and learn to be a nurse. The head of the hospital looked doubtfully at the well-dressed and refined-looking young woman as she said, "Our nurses



FLORENCE NIGHTINGALE

A great woman, who loved service  
better than a life of ease

not only nurse but must scrub floors and do other disagreeable manual tasks." But Florence Nightingale liked to do hard things. "Just try me," she said. And so for several months she nursed, and scrubbed floors, and studied. She was an apt pupil, and after finishing her training did some remarkable work in the hospitals of England.

In the year 1854 the Crimean War broke out. England had no nurses to take care of the sick and dying. But Florence Nightingale was prepared. The government called upon her for help. She went to Crimea with forty nurses. The condition of the soldiers was horrible. There were no sanitary facilities, no laundry, no supplies, no food fit for the sick. In the end Florence Nightingale overcame every obstacle. The death rate in the hospitals dropped from between 50 and 60 per cent to 2 per cent, something unknown to the army even in peace times. The soldiers loved her and adored her. Because she passed through the wards of the hospitals at night smoothing the pillows of the sick and nodding and smiling to the wounded, she was called the Lady of the Lamp. The soldiers kissed her shadow as it fell on their heads and pillows. One soldier wrote, "Before she came there, there was such cursing and swearing, but after that it was holy as a church!"

After the war Florence Nightingale returned to England somewhat broken down in health because of over-



work, but she raised a fund of \$200,000 to establish the first modern training school for nurses. This school was copied throughout the civilized world.

To the very last day of her life she was interested in doing something for the comfort and happiness of others. She left the world better than she found it, and she left also a beautiful memory of service.

**The Health Doctor.** Many of the health departments today are emphasizing the desirability of a thorough physical examination of every citizen at least once every year. As a rule such examinations are given only when an individual is ill—sometimes so ill that he is beyond medical aid. Such a plan is about as inefficient as to pay no attention to an automobile until it breaks down. No sensible person would think of dealing in this way with any machine, yet this method is the common one in dealing with the human machine.

In the past the doctor has concerned himself almost entirely with disease, but in the future he will be more and more interested in keeping people well.<sup>1</sup> He will give his patrons a regular physical examination,<sup>2</sup> advise them concerning health habits,<sup>3</sup> and attend them when they are ill.<sup>4</sup> In most cases he will be able to detect the approach of sickness and be able to ward it off. Such doctors are even now beginning to serve communities. They are using their highly scientific knowledge and skill to prevent disease rather than cure it. They are also trying to pro-

mote robust physical health. These should be the goals of every physician, nurse, teacher, and citizen.

### *Remember*

1. Departments of health help to prevent disease.

2. To do their best work departments of health need the support of the public.

What other facts do you remember from the reading of this chapter?

### *Health Habits and Customs*

1. Obey all health laws.

2. Read the bulletins of the health department.

3. Take an interest in the work of the health department.

4. Support it with your influence.

5. Help it to educate the people on health. Help it to enforce the laws.

### *Things to Do*

1. What are the special public-health problems in your community?

2. Find out more facts concerning the life of Florence Nightingale.

3. Read Longfellow's poem on Florence Nightingale entitled "Santa Filomena."

4. Appoint three committees to write for rules and regulations and pamphlets on health: one to the local department, one to the provincial department, and one to the Dominion department at Ottawa.

5. Invite lecturers from the health department and nurses to come and meet with you.

6. Compare the work of your own health department with the activities of health departments referred to in this chapter.

### *Review and Thought Questions*

1. What are five important activities of a local health department?

2. How many persons are on your local board of health? Are they elected or appointed? What salary do they receive? What is your local department of health doing for the public?

3. What is your local department of health doing to prevent epidemics?

4. In what way may statistics about health be helpful?

5. How may a laboratory be helpful to a department of health? *B. What is a culture? & What is a laboratory?*

6. Is there any kind of food inspection in your community? *Every 8 months*

7. Does your health department require everybody who handles food to have a license? a physical examination? *yes*

8. What are your local and provincial departments of health doing to educate the public?

9. What is the work of a public-health nurse?

10. In what way did Florence Nightingale show that she had character? *B* What did she do for England and for the world? *C* Why was she called the Lady of the Lamp?

11. How does a health doctor differ from other doctors?



## APPENDIX

### EXERCISES TO PROMOTE GOOD POSTURE AND TO CORRECT FAULTY POSTURE

Primarily for the teacher. By Esther Wilson Klein

#### GROUP I

A series of exercises that are given with the intention of correcting faulty posture should always start with posture training.

This means that we have the class practise standing with the feet parallel, the weight in front of the ankle joint, the knees easy, the lower back flat with the abdomen in, the shoulders low with ribs well spread, and the chin low with neck back (see Fig. 1, showing good and bad posture).

The next step is training in breathing, for if we breathe correctly our posture will be good. But it is also true that if our posture is good we breathe correctly.

We first assume a straight position and then put the hands on either side of the front of the ribs (see Fig. 2). Next we take a deep breath, spreading the ribs on each side out as far as possible. We now let out the breath, taking care to keep the abdominal muscles firm while this is being done (see Fig. 3).

When we carry ourselves poorly our muscles become shorter than normal in some places and our movements become limited. It then becomes necessary to stretch our muscles in order to be able to assume a good position.



FIG. 1



FIG. 2

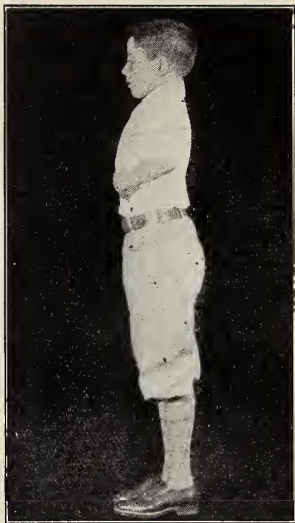


FIG. 3

### STRETCHING EXERCISE

*Description.* Standing with the hands crossed over the head, stretch up, spreading the ribs and muscles, first on one side and then on the other (see Fig. 4). Next spread the arms diagonally up, out, and backward (see Fig. 5). From this position stretch the arms upward and backward. After stretching them well five or six times, lower them slowly, keeping the ribs spread well until the arms are down. Relax and repeat about eight times.

*Purpose.* To stretch the muscles on the sides of the back and chest and to stretch the muscles on the front of the chest which, when tight, would keep the shoulders forward.



*Note.* Be careful, in doing this exercise, that the back does not get hollow and the upper back or shoulders rounded. Also be careful not to hunch the shoulders. This would let the head come forward, and of course we do not want that.

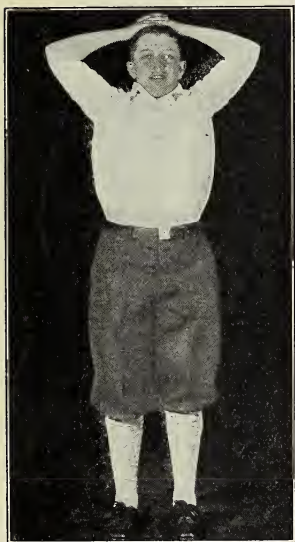


FIG. 4

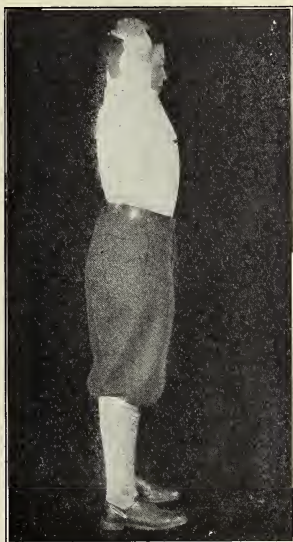


FIG. 5

### BACK EXERCISE

In this place in the group we will do an exercise which works on the back muscles.

*Description.* Sit in the chair with feet flat on the floor. Clasp the hands behind the back with the elbows straight. Bend the head forward until it touches the knees (see Fig. 6). First pull in the abdominal muscles tightly. Then slowly straighten the lower back. Next raise the upper

back, then the shoulders and head. Lastly, pull down hard with the arms, making the shoulder blades flat and the whole spine straight (see Fig. 7).

*Purpose.* This exercise works on the back muscles with the object of strengthening the whole spine.

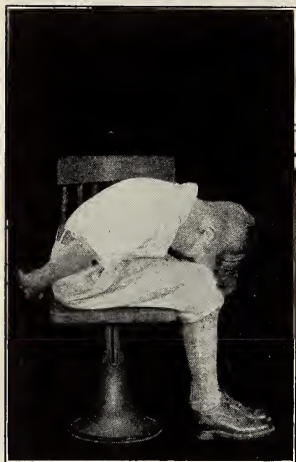


FIG. 6



FIG. 7

*Note.* It is necessary to see that each part of the spine is straightened separately, and that, in finishing, an overcorrected position does not result, namely, a hollow lower back and a double chin.

We next come to the exercise in our list which requires the most work. Many times necks are the hardest part of the spine to make straight, so the following exercise will be for that region.

### NECK EXERCISE

*Description.* Sit with the entire back straight against the chair. Keep the back in this position while you drop the head on the chest (see Fig. 8). The person in the seat behind puts his hand on the base of the

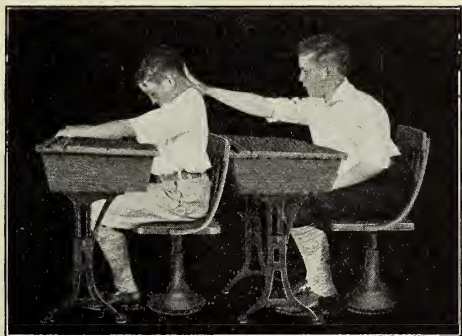


FIG. 8

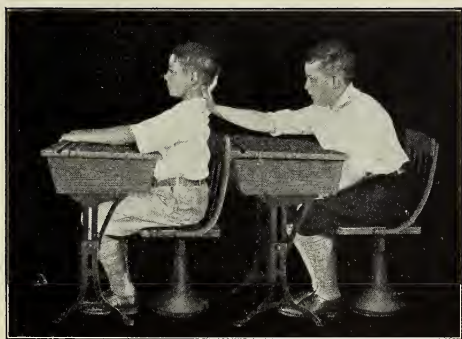


FIG. 9

skull of the person in front. The person in front raises his head while the one in back resists rather strongly his attempt to do so (see Fig. 9).

*Purpose.* The resistance makes the neck muscles work harder, so that it is easier to feel them pull. This exercise corrects a forward head.

*Note.* The person resisting should be careful not to offer too much

resistance, and the person working should be sure to keep the chin in as he raises his head.

An exercise which will make us more flexible comes now on our list and stretches strongly the muscles which are tight.



FIG. 10



FIG. 11

### FLEXIBILITY EXERCISE

*Description.* Take an A posture position and then stretch the arms over the head (see Fig. 10). Bend forward quickly, keeping the knees straight, and touch the hands to the floor (see Fig. 11). Come to an upright position again, stretch the arms over the head and repeat the forward bending.

*Purpose.* This exercise keeps the lower back from developing a hollow that would become inflexible and hard to correct.

*Note.* Be sure to keep the knees straight in bending forward, and in coming to the upright assume quickly an A posture.

Last of all, in this group of exercises we do breathing which helps us to think again of our standing position.

Hold the chest high and, without lowering it, breathe, spreading the ribs well to each side. Also try to see if you can get them to come out in front, always remembering, however, to keep the abdomen flat while breathing.

## GROUP II

In this second group of exercises, which are a little more difficult, we start with posture training as we did in the first group.

Besides taking a good position as we stand beside the desks, we should try walking around the room trying to keep the feet toeing straight ahead, walking lightly, swinging the arms from the shoulders, and remembering to keep the back straight and the head high.

After posture training we do breathing. We try this time to stretch the arms out at the side and see if we can breathe without raising the chest, just spreading the ribs sideward and remembering always to keep the abdomen flat all the time while we are breathing (see Fig. 12).

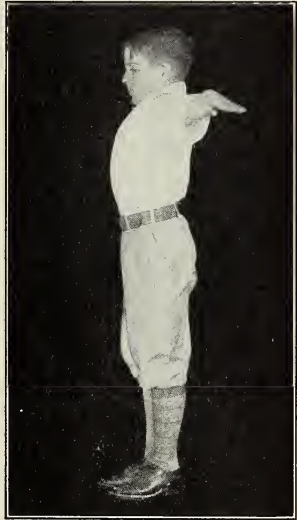


FIG. 12

## STRETCHING EXERCISE

*Description.* Stand in the best position and then stretch both arms diagonally up beside the head. Keeping a straight back, bend to the left



FIG. 13



FIG. 14

side slightly and then to the right side, each time stretching a little more than the time before (see Fig. 13).

*Purpose.* This exercise aims to stretch the back muscles on the side, so that it will be more possible to get and to retain a good posture.

*Note.* Be careful to see that the back is held well and does not tip backward or forward as the exercise is done (see Fig. 14). This would be made easier by standing with the feet wide apart.



We next work on an exercise which helps all the back and abdominal muscles as well as the leg muscles.

### TURKEY WALK

*Description.* We assume an A posture and clasp the hands behind the back. Next bend the left knee up as high as possible (see Fig. 15), then

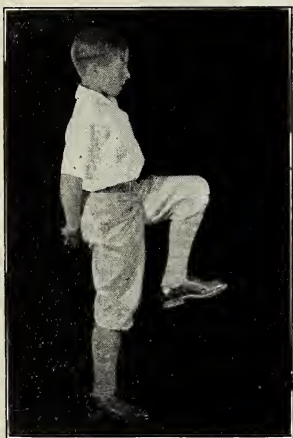


FIG. 15



FIG. 16

stretch it out in front, and finally lower it, having the heel touch the floor first as you step (see Figs. 16 and 17). Do exactly the same with the other foot and continue to walk down the aisle in this way.

*Purpose.* To hold the upper back and head in a good position while we put the body in motion. To exercise the muscles which keep the lower back straight and to learn to hold the whole body well when it is hard to balance it.

*Note.* The exercise should be done rather quickly at first, since this helps in balance. Then it should be done slowly and with good control.



FIG. 17

Fig. 19). Bend the arms again and repeat.

*Purpose.* This exercise strengthens the upper back muscles and also the arms. Sitting cross-legged helps us to keep the lower back straight.

*Note.* Be sure that the head is well back and that the spine is kept straight all the time we are working.

As in our other group we had a flexibility exercise, so in this one we should do something which helps to limber us.

Now we come to the exercises in the list which call for the most work, because someone else is offering resistance to the muscles.

### WAND EXERCISE

*Description.* We sit on the floor cross-legged. (In most schoolrooms there will be no chance to get wands, so we will use the hands in place of them.) Then we grasp the wrist of the person who is going to help, keeping the elbows bent in to the side with the fists at shoulder level (see Fig. 18). The object is to push the arms straight up over the head while the person helping slightly resists our attempt to do so (see



FIG. 18

## AÉROPLANE EXERCISE

*Description.* We stand with the feet wide apart and stretch the arms over the head (see Fig. 20). We bend the body forward and touch the toe of the right foot with the left hand (see Fig. 21). We straighten the body



FIG. 19

to an A posture with the arms stretched upward, and then again bend forward, touching the left foot with the right hand (see Fig. 22). Again come to the upright. Repeat the whole exercise, bending and straightening as quickly as possible.

*Purpose.* This exercise aims to make the middle and lower back more flexible, stretching well the muscles on each side.

*Note.* Be sure the knees are kept straight all the time, particularly as we bend over. In coming to the upright position we must be careful not to hollow the back or round the shoulders.



FIG. 20



FIG. 21



FIG. 22

## LASTLY WE DO A BREATHING EXERCISE

(To be done without commands, each child breathing as deeply as he can.)

*Description.* Put the hands on top of the chest and breathe, raising it as high as possible. Then lower it. Do this five times and then put the



FIG. 23

hands on the sides of the chest and breathe five times, spreading the ribs toward the side. Last of all put the hands on the front of the chest just where the ribs begin to divide, and breathe, pushing the ribs forward as far as possible five times (see Fig. 23).

*Note.* Always keep the abdomen flat, never allowing it to become prominent.

These two groups of exercises that have been outlined aim to give a simple postural training to the muscles which are apt to be relaxed, or tight, as the case may be, in a poor standing position.





## PRONOUNCING VOCABULARY AND INDEX

KEY. *āle*, *āt*, *ärm*, *final*; *ēve*, *ēvent*, *ënd*, *hēr*, *recgnt*; *īce*, *īll*; *ōld*, *ōbey*, *ōn*; *ūse*, *ūnite*, *fūr*, *circūs*; *foōd*; *ŋ as in ink*; *oi as in oil*; *ou as in noun*.

- Accidents, from machinery, 117; common causes of, 123-125
- Air, fresh, as preventive of tuberculosis, 11; for health of babies, 38
- Alcohol, 139-144
- Anthrax (*ān'thrāks*), conquest of, 3
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